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1896 1897

1898 1899



C. Gresley.

1836.

?







Hawk carrying off a Leveret.

A
FAMILIAR HISTORY
OF
BIRDS:
THEIR NATURE, HABITS,
AND INSTINCTS.

BY THE
REV. EDWARD STANLEY, M.A., F.L.S.,
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PUBLISHED UNDER THE DIRECTION OF THE COMMITTEE OF GENERAL
LITERATURE AND EDUCATION, APPOINTED BY THE SOCIETY
FOR PROMOTING CHRISTIAN KNOWLEDGE.

TWO VOLUMES, WITH ENGRAVINGS.

VOLUME I.

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JOHN W. PARKER, WEST STRAND.

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P.



ADVERTISEMENT.

THIS work is intended for a class of readers to whom mere scientific details would be unacceptable, if not unintelligible. Such therefore have been, as much as possible, avoided, and only alluded to as inducements to those who are interested in the subject, to make further progress in so attractive a department of Natural History.

There are few individuals who have it not in their power, occasionally, to remark the instincts and habits of Birds; and the many anecdotes collected from the Author's own observation, the information of friends, or various respectable sources, will, it is hoped, excite others to register any facts within their reach, which may illustrate the mysterious economy whereby this beautiful portion of God's creation is enabled, in so many instances, to surpass the highest efforts of man's ingenuity, foresight, or philosophy.



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INTRODUCTION.

OUR object being rather to furnish the reader with rational and interesting facts, than systematic arrangements, it is not intended to treat the subject of Ornithology* scientifically. But, at a period when the education of every class of the community is rapidly improving, and when the minds of the rising generation are in a state of advancement, which will fit them for that more perfect knowledge, which, in the preparation of elementary books, ought always to be kept in view, it is of importance that even the simplest work should be arranged and founded, in some degree, on scientific principles. We shall, therefore, commence with a few introductory remarks, on those peculiar features in the formation and habits of Birds, by which they are distinguished from other branches of the animal creation; evincing as they do that uniform and beautiful adaptation of means to the accomplishment of certain ends, which characterize every branch of the creation; each in its respective perfection proving beyond contradiction, that as "the works of the Lord are manifold, so in wisdom hath he made them all."

The visible creation, it has been well said, was Adam's library. There may be times, places, and occasions, in which a page out of a book in that library may impart, not only instruction to the head, but consolation to the heart. When that persevering

* From *ornis* and *logos*, two Greek words, signifying the knowledge of birds.

traveller, Mungo Park, was at one period of his perilous course, fainting in the vast wilderness of an African desert, naked and alone, considering his days as numbered, and nothing appearing to remain for him but to lie down and die, a small moss flower of extraordinary beauty caught his eye. "Though the whole plant," says he, "was not larger than one of my fingers, I could not contemplate the delicate conformation of its roots, leaves, and capsules, without admiration! Can that Being, who planted, watered, and brought to perfection, in this obscure part of the world, a thing which appears of so small importance, look with unconcern upon the situation and sufferings of creatures formed after his own image? Surely not. Reflections like these would not allow me to despair; I started up, and disregarding both hunger and fatigue, travelled forwards, assured that relief was at hand; and I was not disappointed*." And with the disposition to wonder and adore, in like manner, can no branch of Natural History be studied, without increasing that faith, love, and hope, which we also, every one of us, need, in our own journey through the wilderness of life.

There are some points in which the structure and powers of the winged tribe demand more attention and admiration than those of any other class, inasmuch as the object to be attained is a more extraordinary one, and the difficulties to be overcome, such as the utmost ingenuity of man has been found utterly unable to meet. Let us suppose a person to have grown from infancy to manhood, without ever having heard of a bird. He sees that the light

* *Park's Travels in Africa.*

snow-flake is unable to remain suspended in the air ; that the still lighter thistle-down, when no longer supported by the breeze, has a tendency to fall to the ground ; and yet he is told, that there are tenants of the air, countless as those of earth and water ; that some of considerable size and weight can journey on their way above the clouds, with a facility and speed far exceeding that of the swiftest-footed animal. He may, indeed, from observing that cork and light bodies, when plunged in water, rise to the surface, conceive the possible existence of a lighter substance than air, capable, by the same laws of nature, of rising above the earth. If a philosopher, he may even discover the inflammable and lighter air by which a balloon ascends, with the weight of a man attached ; but how shall he lift a substance *heavier* than the air ? and how guide its progress through the air ? Show him the weighty body of an Eagle or a Swan*, tell him their living history, and he may reasonably doubt your fact, and deny that these things could be.

There is one difficulty in the use of wings that any one may ascertain for himself. Let him take the smallest sized boy's kite by the narrow end, and wave it up and down at arm's length ; he will instantly perceive how great is the resistance of the air, and how obvious the inability of his muscular strength to produce any thing like the rapid motion of a wing. And yet, in order to possess the powers of a bird, he must be able to construct and move artificial wings, in superficial extent, in some cases measuring several of such kites ; with the additional

* The Wild Swan weighs 25-lbs.

difficulties, which mathematical knowledge would prove to be proportionally increased at every step in his progress. How all these seeming impossibilities are accomplished, is perhaps the most interesting part of the following pages.

But the study of Ornithology has other charms, in a great measure confined to itself, and recommending it to the attention of a large class of readers; namely, that of its being within the reach of all who take an interest in the proceedings of the natural world. Quadrupeds, generally speaking, are few in number, and so difficult of access, that in fact, beyond the limited families of our domestic menageries, few can have an opportunity of investigating their habits. Out of eighty genera of four-footed animals, about fifteen only are to be met with in the British islands; of these, many live so remote from man, that accident alone can gratify his curiosity, and of that greater portion scattered over the earth, few, comparatively speaking, ever fall under the observation of the most inquiring traveller. One-half of the characteristic features of the lion and tiger tribe we collect from the analogous habits of one of a similar genus, namely, the cat, which harmlessly purrs by our fire-side: while the sheep and goat afford information respecting the numerous class of ruminating animals, which inhabit parched deserts, or the precipitous regions of rocks and mountains. But in the class of Birds the case is different: many, it is true, and perhaps some of the most singular as well as most beautiful, are seldom accessible; but of those which meet us at *every turn*, which cheer our solitary walk with their

song, or display before us their various instincts and prominent occupations, the number is immense. Of about one hundred and twenty genera, above half are to be met with in this country, and frequently under circumstances favourable for ascertaining their habits and modes of life. Every field and garden, every tree and hedge-row, may prove the prolific source of delightful interest and information ; for a trifling attention will enable an observer to distinguish, when on the wing, high in mid air, or flitting from spray to spray, the genus to which every species belongs. In short, not a day passes but a lover of nature may record in his journal, anecdotes and hints from whence a store of practical knowledge may be derived. In the country, an acquaintance with the feathered creation is like the acquisition of another sense, limited by neither season nor situation ; their periodical journeys to and from regions far remote, their mysterious and wonderful instincts, adapted to their respective situations, are all sources of inexhaustible interest. The spring, the summer, the autumn, and the winter, have each their corresponding interests. There is, moreover, a remarkable uniformity amongst Birds, which does not exist in Quadrupeds ; for instance, a lion and an armadillo, a giraffe or a mole, are as different as living creatures can be conceived to be ; but in Birds, excepting in size, and the natural division between the land and water families, a greater similarity is discoverable ; a circumstance which enables us to treat more briefly the particular history of their several subdivisions.

CHAPTER I.

RANK OF BIRDS IN THE ANIMAL KINGDOM.—TABLES OF CLASSIFICATION.—DIRECTIONS FOR THEIR APPLICATION.

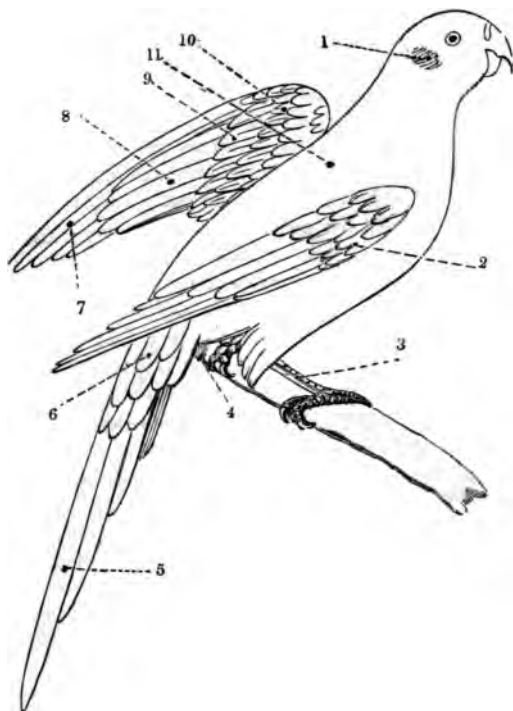
BIRDS form the second class in the great natural division of the Animal Kingdom. They resemble the first class, Mammalia (those that suckle their young), in some respects; such as the general form of the skeleton, the mode of breathing through lungs, &c. They differ from them by being what is termed Oviparous, or producing their young enclosed in eggs, in their outward form, in their feathery covering, and in the structure of their mouths, which are furnished with a horny bill, instead of lips and teeth; but most particularly are they distinguished from other animals, by being provided with wings.

It is not our intention, as we have said, to treat the subject in what is called a scientific manner, by entering into details and particulars, more calculated for those who have made it a matter of long study, than for the greater number, probably, of our readers, who may have paid little attention to it; but as it is our wish to be as extensively useful as possible, we have drawn up the following Tables, giving at a glance, not only a general outline of the rules by which Birds are classed, but at the same time enabling an inexperienced person, with very little trouble, in most cases, to make out for himself the genus, or family, of any specimen which may be placed before him, and which he may wish *to describe*.

We are far from recommending these Tables as perfect, or even the best that could be drawn up, and an experienced student will, no doubt, find some of the subdivisions to be defective ; but, when the difficulty of any mode of classification, so accurate and unexceptionable in all its details as to meet every case, is considered, an approximation to the truth is all that can be hoped for ; and we trust, that for practical purposes and general use, the annexed will be found, on the whole, simple and satisfactory. Whatever may be their imperfections, we can at least vouch, from experience, for their tending very materially to facilitate a learner's progress ; and as they are founded on the authority of some of our most esteemed naturalists*, even the more advanced may, it is to be hoped, refer to them with advantage†.

* Chiefly from Cuvier and Dumeril.

† The best tables of classification and reference we have seen are those now publishing in large sheets with figures, at a very moderate price, by M. Achille Comte, illustrating Cuvier's *Règne Animal*.

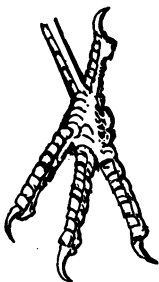


- | | | |
|-------------------|--------------------------|-------------------------------------|
| 1. Ear-coverts. | 6. Upper Tail-coverts. | 11. Scapulars, feathers rising near |
| 2. Bastard-wing. | 7. Primary Quills. | the junction of the wing with |
| 3. Tarsus. | 8. Secondary Quills. | the body, and lying along the |
| 4. Vent-feathers. | 9. Greater Coverts. | sides of the back. |
| 5. Rectrices. | 10. Lesser Wing-coverts. | |

1. RAPACIOUS.



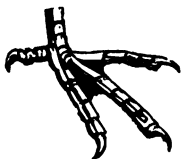
2. PASSERINE.



3. SCANSORES.



4. GALLINACEOUS.



5. WADERS*.

6. WEB-FOOTED.



* Waders are readily distinguished by their length of leg.

Table I. CLASS BIRDS.

Blind toes	(two, and two in front	3 Scansores	Climbers	Woodpeckers	14
	only one, or none.—	unconnected.—Beak and Claws strongly hooked.	1 Rapaces	Rapacious	3
	Fore-toes	entirely, or furnished with membranes	6 Palmipedes	Web-footed	26
		united {	all at the base by a membrane	4 Gallinaces	17
			in part {		
			the two outer* {	very long	5 Grallæ
			Legs . . . {	moderate length	3 Passeres
					Waders
					Herons, &c.
					Passerine
					Sparrows, Crows
					6

- This connexion or division in the fore-toes, alluded to in the above table, cannot quite be depended upon, as in many of the rapacious birds the external toes are partially connected; and in the Passerine Order there are many instances in which the separation between them is complete. In these cases, we must refer to other distinguishing characters.

Table II. First Order. RAPACIOUS.

One toe only behind. The outer toes often, but not always, unconnected. The beak is strong, hooked, generally but not invariably short, and fitted for tearing flesh. The base of the upper mandible is covered by a coloured membrane, called the *circ*. The feet are strong and muscular, armed with long, hooked, sharpened claws, which are retractile.

		Tribes.		Example. Table.	
Eyes	On the side of the head.	{ without feathers	1	Nudicolles	Naked-necked Vultures
	Head or part of neck	{ feathered	2	Plumicolles	Feather-necked Eagles
	In front.	Large	3	Nocturnæ	Nocturnal Owls

Table III. NUDICOLLES (*Naked-necked*).

First Tribe of the First or Rapacious Order, from Table II.—Lower part of neck with a collar of long feathers; the upper part covered with down. Beak lengthened, bent only at the extremity.

Head or neck { wattled not wattled	<i>Genus.</i>		<i>Example.</i>
	. . . . . 2	Sarcoramphos.—Fleshy beaked.	Condor.
	. . . . . 1	Vultur.	Vulture.

Table IV. PLUMICOLLES (*Feathered-necked*).

Second Tribe of the First or Rapacious Order, from Table II.—Eyes on the side of the head. Head and neck feathered. Base of the beak with a cere.

Lower mandible { with a bearded, or pointed tuft of bristles, or hair like feathers. feathers very considerably projecting one beyond the other.—Nape of neck crested.—Tarsi very long. } no tuft.—Tail { not projecting.—First feather of wing .	<i>Genus.</i>		<i>Example.</i>
	. . . . . 1	Gypsetus	Harpy Bearded Vulture
	. . . . . 5	Serpentarius	Snake-eater Snake-eater.
	{ long and straight from the base }	6 Aquila	Eagles Golden Eagle
	{ Shorter.—Beak bent.—Wings shorter than tail }	2 Buteo	Buzzard
	{ longer than the others 4 Falco }	3 Astur	Hawks Sparrow-hawk
			Falcon Peregrine Falcon

Table V. NOCTURNÆ (*Night Birds*).

Third Tribe of the First or Rapacious Order, from Table II.—Eyes large, in front of a large head.
Beak, short and hooked covered at the base, and over the nostrils, with stiff, fine bristles.

Tail	{	long, with feathers projecting one beyond the other	Genus.	Example.
Head	{	moderate length, nearly straight.	with feathers in the form of ears	1 Surnia
			without feathers like ears	2 Bubo
				3 Strix
				Great-horned Owl
				Barn Owl.

Table VI. Second Order. PASSERINE.

One toe behind, the two outer front-toes connected. Tarsi of moderate length.—This Order is by far the most numerous of the class of Birds, comprising all those which are neither swimmers, waders, climbers, rapacious, nor gallinaceous.—In so comprehensive an Order, the subdivisions are complicated, and often so doubtful, as to render it a difficult task for Naturalists to define them.

Beak	{	notched, or indented with	{	one or two notches, or indentations, at most	1 Dentirostres, notch-billed	Shrike	Table.
strong and solid	{	straight, rather long, compressed .	3 Plenirostres, full & strong	Crow	Sparrow	Lark	11
generally, but not in all cases, weak,	{	slightly bent, short conic	4 Conirostres, conical	Swallow	Humming Bird	13	7
no notches	{	narrow, round	5 Subulirostres, awl-shaped	Lark	Swallow	Humming Bird	12
flexible	{	wide, flat	6 Planirostres, flat-billed	Humming Bird	13	13	8
long and narrow *	{	long and narrow *	7 Tenuirostres, narrow-billed	Humming Bird	13	13	9

* Inexperienced observers might, from the strength and form of the beaks of Kingfishers, Nut-hatches, and a few other birds, consider them as more properly associated with the Plenirostres, or full and strong-beaked tribe. But from other features, on the whole more applicable to the Tenuirostral, or narrow-billed, they are by Naturalists included in this latter tribe; an additional subdivision will, however, be found annexed to Table XIII., obviating some of the difficulties.

Table VII. DENTIROSTRES (*Notch-billed*).

First Tribe of the Second or Passerine Order, from Table VI.—With one or two notches, or indentations, at the extremity of the beak. The external toe is united to the middle toe, as far as one or two joints. This tribe, though very numerous, is composed of birds comparatively small, few exceeding that of a pigeon. Their food is chiefly insects, but many do, and they all can, feed on fruits and seeds, according to circumstances. The characteristic marks of the notches in the bill also vary considerably; in some being strongly developed, in others scarcely, if at all, perceptible. Hence the necessity of many subordinate divisions to be found in more scientific works.

Beak		Genus.		Example.	
{	comparatively straight	{	Conic.—Triangular at the base, slightly curved in the middle	5 Tanagra	Tanager
			hooked at the end, compressed, very strong	1 Lanius	Butcher-bird
			depressed at base, compressed and strong at tip	3 Muscicapa	Fly-catcher
{	more bent	{	notch at extremity very visible	4 Ampelis	Bohemian Chatterer
			notch at extremity slight	2 Turdus	Thrush

Table VIII. SERRATIOSTRES (*Serrated Beaks*).

Second Tribe of the Second or Passerine Order, from Table VI.—Beak indented with at least three notches, and often more. The birds of this tribe are all foreign, very little known, and few in number; they feed, it is believed, chiefly, if not entirely, on fruits or vegetable substances.

Beak		Genus.		Example.		
{	very long, surmounted with a singular horny appendage	{	both mandibles indented	3	Buceros, Calceo Hornbill	
	without a horny appendage		indentations on upper mandible only	2	Momotus	
				1	Phytotoma Plant-cutters	

Table IX. PLENIROSTRES (*Full and strong-beaked*).

Third Tribe of the Second or Passerine Order, from Table VI.—Beak lengthened, straight at base, not indented.

	Genus.	Example.
Head { in some places naked, or with fleshy wattles without feathers	1 Gracula	G. Religiosa
or Neck { very long, with tufted or velvety plumes	2 Paradisia	Paradise Birds
{ no parts bare.—Feathers { naked; beak bent at end	3 Coracias	Roller
{ on sides or back . . . { short.—Nostrils { covered with bristles.—Tails { truncated . . . 4 Corvus		Crow
	{ covered with bristles.—Tails { wedge-shaped . . 5 Picus	Maggie

Table X. CONIROSTRES (*Conical Beaks*).

Fourth Tribe of the Second or Passerine Order, from Table VI.—Beak conic, somewhat curved, solid; some, but not all, without indentations at extremity of beak. The genera comprised in this tribe are so numerous, and the gradations from one to the other so indefinite, that it requires much experience to form an accurate idea of the various groups into which it is divided.

	Genus.	Example.
{ lengthened { Swelling in the middle	4 Buphaga	Oxpecker
{ not wattled { wattled under the lower part	3 Glaucopsis	Wattle-bird
{ no wattles.—At the base { round.—Naked part { pointed . . 2 Oriolus		Oriole
	{ no wattles.—At the base { rounded . . 1 Cisticus	
	{ flat; no bare part	5 Sturnus
	{ mandibles crossing	10 Curvirostra
	{ swelling at the base, and { simple.—Tail { short, simple . . 9 Loxia	
		{ simple.—Tail { prolonged . . . 8 Colius
{ short, but very solid { not swelled.—Upper mandible { covering the lower . . . 6 Fringilla, Finch		
	{ received by the lower . . . 7 Emberiza, Bunting	Yellow-hammer

Table XI. SUBULIROSTRES (*Awl-shaped Beaks*).

Fifth Tribe of the Second or Passerine Order, from Table VI.—Beak short, in some cases rather feeble and flexible; at the base straight and rounded. The gradations between the beaks of this and the preceding tribe are so indefinite, that it has by some Naturalists been included with the Conirostres: the other characteristic features also, in some cases, cannot be absolutely relied upon.

	<i>Genus.</i>		<i>Example.</i>	
Beak in proportion to width	{	quarter of the length.—Tail	very short	1 Pepra Manakins
		of head	somewhat lengthened	2 Parus
half the length.—Hind claw	{	straight	4 Alauda	Lark
		curved	3 Motacellæ	Wag-tail

Table XII. PLANIROSTRES (*Flat-beaked*).

Sixth Tribe of the Second or Passerine Order, from Table VI.—Beak short, feeble, wide and flat at the base. The character of this tribe, with regard to their wide, flat beaks, is very clear. They all feed on insects, chiefly flying.

	<i>Genus.</i>		<i>Example.</i>
Toes with {	{ claws similar {	all four in front	1 Apus Swift
		three in front	2 Hirundo Swallow
middle claw notched on one side		3 Caprimulgus Goat-sucker	

Table XIII. TENUIROSTRES (*Narrow-beaked*).

Seventh Tribe of the Second or Passerine Order, from Table VI.—Beak long, narrow, not indented, often flexible. A prominent feature in this tribe is, that the beak is at least twice as long as the depth of the head; in other respects, the different species have little or no resemblance.

		<i>Genus.</i>		<i>Example.</i>	
Beak	straight.—Outer toes	entirely connected.—Beak	compressed 7	Alcedo*	Kingfisher
			depressed 8	Todus	Todies
	slightly separated.—Tongue	simple	simple 1	Sitta	Nut-hatch
			tubular 4	Orthorinchus, straight-billed	Humming-birds
Beak	bent.—Outer toes	connected up to the claw	. . . . . 6	Merops	Bee-eater
			. . . . . 3	Trochilus, bent-bill	Humming-birds
	slightly separated.—Tongue	very long {like a tube	. . . . . 2	Certhia	Creepers
			flattened 5	Upupa	Hoopoe

* To obviate the difficulties of arrangement, in some of the genera of this table, an additional subdivision has been introduced under the title of Syndactyli, meaning adhesion of the toes; consisting of the genus Alcedo, Todus, and Merops. The Buceros and Momotus of Table VIII. are also, by some Naturalists, included amongst the Syndactyli, from having the same peculiarity; viz. an actual junction or adhesion of the outer and middle toe, extending nearly throughout.

Table XIV. Third Order. SCANSORES, or CLIMBERS.

Feet with two toes before and two behind.

		<i>Tribes.</i>		<i>Example.</i>		<i>Table</i>	
Beak	{ not very large at the base; not toothed very large and disproportioned at the base, or notched . . . . .	. . . . . 1	Cuneirostres	Wedge-billed	Woodpecker	15	
		. . . . . 2	Levirostris	Empty-beaked	Toucans	16	

Table XV. CUNEIROSTRES (*Wedge-billed*).

First Tribe of the Third or Scansorial Order, from Table XIV.—Beak pointed, narrow at the base, in form of a wedge, not indented. The birds of this tribe never, or with great difficulty, walk, in consequence of the formation of the feet and toes. They live upon insects.

			Genus.	Example.		
Beak {	straight.—Tongue {	very long.—Tail {	short, with hard bristly feathers	5 Picus	Woodpecker	
				longer and squared	4 Yunx	Wryneck
	rather curved	short {			2 Galbula	Jacamar
					compressed, keel-shaped	3 Crotophaga Ani	Keelbill
	Mandible {	rounded, nostrils projecting	1 Cuculus		Cuckoo	

Table XVI. LEVIROSTRES (*Light or empty-beaked*).

Second Tribe of the Third or Scansorial Order, from Table XIV.—Beak wide and large at the base, light, often indented. This tribe differs, by being climbing birds, from the Hornbill, whose beaks are equally disproportioned.

		Genus.	Example.		
Beak {	dentated {	longer than the head	5 Rhamphastos		
		prolonged, forming a bony sort of plate or forehead	4 Musophagus		
			covered with bristles	3 Trogon	
		simple.	Nostrils {	naked, visible	2 Touraco
			straight, indented, cleft up to the eyes	1 Bucco	
	not dentated	bent.—Cheeks {	naked and often coloured	8 Ara	
			feathered {	head tufted	7 Cacatoes
		head not tufted		6 Psittaceus	
					Mackaws
					Cockatoos
			Parrots		
			Toucans		

Table XVII. Fourth Order. GALLINACEOUS.

Anterior toes connected by a short membrane. This is a distinguishing feature of the Order; thus differing from the Rapacious, which have not the three anterior toes connected; from the Web-footed, which have them altogether united; and from the Climbers, which have two behind and two before. The Passerine Order, indeed, have the two outer toes connected, but scarcely by a web; from the Waders, the Gallinaceous differ, by their being more feathered about the thigh and leg; however, in some cases there is a connecting link not easily defined.

	Wings	Beak, at the base,	Tribes.	Example.	Table.
{ adapted for flight.	{	flattened, swelled, fleshy, soft	1 Peristera	Pigeons	18
		rounded, horny, solid	2 Alectroides	Poultry	19
		very short, not adapted for flight: body heavy	3 Brachyptera	Ostrich	20

Table XVIII. PERISTERA (*Pigeons*).

First Tribe of the Fourth or Gallinaceous Order, from Table XVII.—Dove tribe: wings calculated for swift flight; body very little raised upon the legs; bill slender, weak, and straight at the base; nostrils lodged on a soft protuberance; toes divided to their origin, in which they are exceptions to the general rule of the Order; they may, indeed, be considered as forming the intermediate link between the Gallinaceous and Passerine Orders.

Table XIX. ALECTROIDES (Poultry).

Second Tribe of the Fourth or Gallinaceous Order, from Table XVII.

		Genae.		Example.		
Part of the Head	plumed or crested.	Feet with {	three toes only	8 Otis		
			four toes	1 Pavo		
	not crested, naked round the eyes	{	only.—Tail {	of equal length; truncated.	7 Tetrao	
			prolonged		6 Phasianus	
			{	with a bony front on the head	5 Numidia	
				and beak {	tufted {	with a cirre	3 Crax
		{	{	no bony front	no cirre	4 Penelope
				no tuft		2 Meleagris
		Bustard				
		Pheasant				
Partridge						
Guinea-fowl						
Curassow						
Turkey						

Table XX. BRACHYPTERA (Short-winged).

Third Tribe of the Fourth or Gallinaeous Order, from Table XVII.—Wings too short for flight; body heavy; legs naked above the knee.

[illegible]

Table XXI. Fifth Order. GRALLÆ (*Waders*).

Shanks very long, naked up to the thigh; outward toes united at the base, but not in all cases; beaks generally proportionably long with the shanks.

		<i>Tribes.</i>		<i>Example.</i>	<i>Table.</i>
Beak	{ blunt, obtuse,	{ flat, very wide	3	Latirostra, wide-beaked	Spoonbill 24
			4	Tenuirostra, flexible bill	Snipe 25
	{ very sharp,	{ long, conic, cutting	2	Cultrirostra, cutting-beak	Heron 23
			1	Pressirostra, narrow-beak	Coot 22

Table XXII. PRESSIROSTRA (*Narrow-beaked*).

First Tribe of the Fifth Order of Waders, from Table XXI.—Beak pointed, narrow, compressed, particularly near the point, tolerably strong, its depth exceeding its width.

		<i>Genus.</i>		<i>Example.</i>
Forehead	{ carunculated, with a spur upon the wings	{ hind-toe	3 Parra	Jacana
			4 Rallus	Rall
	{ not carunculated	{ no hind-toe	5 Hematopus	Oyster-catcher
			1 Gallinula	Water-hen
				{ bald, four toes, three anterior, { lobated . . . . .		Coot

Table XXIII. CULTRIROSTRA (Cutting-bills).

Second Tribe of the Fifth Order of Waders, from Table XXI.—Beak long, straight, conic, very sharp and cutting. The name Cutting-billed, is given to this tribe, not so much from any allusion to their being sharp or knife-formed, which, indeed, they are not, as to distinguish them from those of the two succeeding tribes, whose beaks are the very reverse. Their food consists chiefly of reptiles, such as frogs, snakes, fish, &c.

		Genus.	Example.	
Mandibles	which, from base to tip, in intermediate space, do not touch	. . . . . 5 Anasomus,	open-beaked
	{ straight-pointed; middle claw	{ toothed within 1 Ardea	Heron
		{ not toothed.—Head	{ plumed . 2 Ciconia	Stork
	{ which meet and touch	{ not plumed 3 Grus	Crane	
		{ the upper curved at the point	Jabiru
		{ upwards 4 Mycteria		
		{ downwards 6 Tantalus	Ibis	

Table XXIV. LATIROSTRA (Flat-beaked).

Third Tribe of the Fifth Order of Waders, from Table XXI.—Beak blunt, broad, flat, thin, and wide.

		Genus.	Example.
Beak	curved from the middle, upper mandible flattened, lower convex	. . . . . 3 Phœnicopterus*	Flamingo
	longer than the head, widening into a spoon form	. . . . . 2 Platalea	Spoonbill
	straight { shorter than the head; upper part like a reversed boat	. . . . . 1 Cancroma	Boat-bill

* Flamingo is, in fact, web-footed, but as it does not use the web for swimming, and has all the other features of a wader, it is inserted in this Table, which may be considered as its natural place.

Waders.

Table XXV. TENUIROSTRA (*Slender-billed*).

Fourth Tribe of the Fifth Order of Waders, from Table XXI.—Beak flexible, long, cylindrical, rounded, blunt, slender.

		Beak		Feet		Gress.		Example.										
	{	{	{	{	{	{	{	{	{									
										much bent, three times longer than the head, and curved .	twice the length of head at least.—Back-toe long .	none, or very small.— Front-toes	very slightly connected, or entirely divided	united as far as first joint, rest lobated	not resting on ground	1	Recurvirostra *	Avoset
almost straight, as long as .	head.—Back-toe	Front-toes	united as far as first joint, rest lobated	3	Tringa	Sandpiper	Phalarope	Plover										
	</																	

* The Avoset is also partially web-footed, but, for reasons similar to those assigned in the preceding note, on the Flamingo, is inserted in the order of Waders.

Table XXVI. Sixth Order. PALMIPEDES (*Web-footed*).

Toes united by wide membranes. Shanks not very long.

Front-toes, in number {	four, or the back-toe included in same membrane	2	Pennipedes, swimming-feet	Cormorant	Table.
{	three.—Beak {	toothed or serrated	1	Serrirostres, serrated-bills	27
{	not toothed nor serrated.—Wing {	very long {	3	Longipennes, long-winged	29
{	very short {	4	Brevipeunes, short-winged	Grebes	30

Table XXVII. SERRIROSTRA (*Serrated, or tooth-billed*).

First Tribe of the Sixth Order, Palmipedes or Web-footed, from Table XXVI.—The three front-toes connected or concealed in the web. Wings moderate length. Beaks more or less serrated.

<i>Genus.</i>		<i>Example.</i>
Body {	very high upon the legs, beak curved, upper mandible flatter than the under . . .	Phœnicopterus • Flamingo
	very low upon the legs.—Beak straight, and in length exceeding width {	Ducks
	three times 1	Anas
	five times 2	Mergus
		Merganser

• See Note to Table XXIV.

Table XXVIII. PINNIPEDES (*Swimming-feet*).

Second Tribe of the Sixth Order, Palmipedes or Web-footed, from Table XXVI.—The four toes united by the same membrane. This gives them a great additional power in swimming; for which reason the title of swimming-feet is more peculiarly appropriate.

<i>Genus.</i>		<i>Example.</i>
Base of beak {	naked, without feathers {	1 Pelicanus Pelican
	with a considerable pouch, or membranaceous bag . . .	2 Hydrocorax Cormorant
	no such pouch.—Beak {	3 Tachypetes Frigate Bird
	bent.—Tail {	Gannet
	not bent, very straight . . .	Tropic Bird
feathered, intermediate feathers of tail {	very long	5 Phaeton
	equal.—Neck very long	6 Plotus Darter

Table XXIX. LONGIPENNES (*Long-winged*).

Third Tribe of the Sixth Order, Palmipedes or Web-footed, from Table XXVI.—Three toes united by the same membrane. Wings very long. Beak not dentated.

		<i>Genus.</i>		<i>Example.</i>	
Beak	{ straight	compressed, upper mandible shortest	2	Rhynchops	Skimmers
		conic, angular; mandibles equal in length	3	Sterna	Terns
	{ bent	upwards near the end, flattened in its length	1	Recurvirostra*	Avocet
		{ a sort of hook or nail	6	Procellaria	Petrel
		{ no such hook or nail	5	Diomedea	Albatross
		downwards { at the end	4	Larus	Gull
		{ throughout the lower part angular			

* See Note to Table XXV.

Table XXX. BREVIPENNES (*Short-winged*).

Fourth Tribe of the Sixth Order, Palmipedes, or Web-footed, from Table XXVI.—Wings very short. Back-toe very short and separate, or none. Beak not dentated. Feet placed very far behind.

		<i>Genus.</i>		<i>Example.</i>	
Wings	{ furnished with feathers	with a back-toe { claws flattened	1	Colymbus, Divers	Grebes
		{ claws curved	2	Uria	Guillemot
	{ without feathers; more like fins	without a back-toe { without a back-toe	3	Alca	Auks, or } Penguins
			4	Aptenodytes	

By way of showing the utility of the preceding Tables, a few instances, explaining the manner of applying them, may be acceptable.

Suppose then, that a person entirely ignorant of Ornithology, finds a bird, and wishes to know its name or character. He will first turn to Table I., where the number of hind-toes appear as the distinguishing guide for further observation. His specimen, for instance, has only one hind-toe; he is then directed to the character of the anterior, or fore-toes, the two exterior or outer of which, in this case, he finds to be very slightly connected, and for a moment, without further rules to guide him, he might be at a loss whether to consider his specimen as belonging to the orders Rapaces, Grallæ, or Passeres: the character, however, of the claws and beak will at once point out the propriety of considering it as of the Rapacious Order, marked as No. 1. For further information, he is then referred to Table II., where the eyes are to be his guide. He finds them on the side of the head, and pursuing his line of direction, sees that it is feathered about the neck, and he accordingly turns to Table IV., where the lower-jaw, or mandible, as it is called, of the beak, is the distinguishing feature. This lower mandible, in his bird, is not furnished with either bristles or tufts like a beard, neither is the tail considerably lengthened out by feathers projecting one beyond the other, like the Snake-eaters, or Magpies, for example.

Having proceeded thus far, his attention is turned to the first feather of the wing, which he finds to be

shorter than the second. He next looks to the beak, which is not lengthened, and straight from its base, but is bent throughout, and hooked at the point. His bird must, therefore, be of the Buteo or Astur genus. But the wings do not extend beyond two-thirds of the tail, it therefore belongs to the Astur genus; and he has then only to ascertain the species, which he will easily do by consulting museums, or books with minute descriptions and plates.

Again: a bird is brought to him, which, on comparing with the characters given in the first Table, he finds to have no back-toe, and that the fore-toes are united by a membrane, he rightly, therefore, concludes, that it belongs to the order Palmipedes, or Web-footed; and he is directed for further particulars to Table XXVI. Thus he perceives, that as his specimen has only three front-toes, that its beak is not toothed, or serrated like a file or saw, and that its wings are very short, it must be of the tribe Brevipennes, and he is referred to Table XXX. Then, as the wings are feathered, and it has no back-toe, it must be of the genus Alca; and he will have little difficulty, on referring to its colours, size, and a few other particulars, to ascertain its species.

In the above references, the birds for consideration were a Sparrow-hawk and Puffin, species more or less known to most of our readers. One more, however, shall be added, entirely foreign. Its colour a brilliant green, beautifully mottled and variegated on the upper part, the lower part of the breast and leg-feathers being of a delicate lemon colour; the size, rather smaller than a Thrush. On looking to Table I., the hind-toes are found to be two, and two before;

it is therefore of the order Scansores, or Climbers, and reference is made to Table XIV., when, as its beak is not very large at the base, and not toothed, it must be of the Cuneirostral tribe, Table XV. On examining its beak, and finding it rather curved, with mandible rounded, and nostrils projecting, there can be no hesitation in pronouncing it to be a Cuculus, or Cuckoo. And so it is: the Golden Cuckoo, one of the most splendid ornaments of the South African forests, and not uncommon at the Cape of Good Hope; and in such a gorgeous garb, little likely to be taken, by an ignorant observer, for a bird belonging to the family of the gray and sober livery-clad class of Cuckoos, peculiar to our northern latitudes.

CHAPTER II.

STRUCTURE OF BIRDS.

EXTERNAL STRUCTURE.—SKELETON.—CHARACTER OF BEAK.—BONES, THEIR LIGHTNESS.—SOLIDITY OF BACKBONE.—BREASTBONE, USE OF.—WING-BONES.—LEGS, PECULIARITIES OF.—WHEN RESTING ON ONE LEG, WHY BIRDS DO NOT FALL.

WE shall now proceed to give a few details concerning the structure and peculiarity of their forms and characters.

In examining the skeleton, we find the head terminating in a beak, composed of a horny substance, in form and structure and hardness, as intimately connected with the habits and general character of the bird, as jaws and teeth are with those of man and other animals. Thus in Eagles, Hawks, and all birds which tear their prey, as well as in Parrots, which have to bruise hard substances, or procure their food by piercing the bark of trees, as Woodpeckers, the bill is extremely hard and powerful. Whereas in those which feed on worms, and substances equally soft, or live by suction, or swallow their food, as Woodcocks, Ducks, &c., the hardness is gradually diminished.

A philosopher need not go further than this instrument, in search of a proof how well the providence of God fits the means to the ends.

The hooked tip and sharp over-hanging edge of *the upper mandible*, in the birds of prey, acts like a



SKELETON OF A VULTURE.

dissector's knife, readily separating the flesh from the bones: a bill, hooked at the end with sharp edges, may indeed be considered as a characteristic of all birds of prey, that is, of all birds living on smaller birds, or quadrupeds, or fishes. Instead of a hook there is a sort of tooth at the extremity of the beak of certain birds of this class, which adds greatly to its strength; and it has been observed, that those possessing it are more noble and courageous than others.



HEAD OF THE BEARDED VULTURE.

Thus the Shrike, or Butcher Bird, although its usual food consists of beetles and insects, will not only bravely defend itself, but occasionally attack birds far superior in size; and is a perfect terror to the smaller species, who flutter round their assailant uttering the most piercing cries, as if they wished to give notice of the intruder's approach. The bill of the Parrot is also hooked, but is at the same time unfitted for the uses to which it is applied by the birds just mentioned, curving and overlapping the lower bill so much, that if the lower bill only had motion, the bird could scarcely open its mouth sufficiently wide to receive food; yet, neither the

hook nor the overlapping could be omitted, since it is by the beak that Parrots so readily climb; for which purpose it is therefore fitted, as well as for breaking nuts and other hard substances on which they feed.

The way by which the Parrot's beak is able to answer both purposes is this: the upper mandible, which in other birds forms one uniform piece or continuation of the skull, is united to the bone of the head by a peculiar membrane placed on each side of it, enabling the bird to lift or depress it at pleasure. The muscular power of this contrivance is very great, for the truth of which all who have incautiously exposed their fingers to the bite even of a Paroquet will readily vouch.

There is a bird, sometimes found in this country, called the Cross-bill, from the singular construction of its beak, the mandibles of which, instead of shutting together like those of other birds, cross each other; at first sight, this might be supposed to be an accidental deformity, and that the poor bird must have great difficulty in picking up its food. But this is by no means the case, for as the bird lives upon the seeds or kernels of the hard fir-cones of pine-trees, it would never be able to crack them, and must soon die of hunger, if not furnished with a bill of more than ordinary strength and peculiarity of construction; exactly, in short, like the bill with which nature has provided it; with this it can instantly, and most dexterously, cut the hardest cones asunder. But as Divine Providence guards against every possible difficulty that might arise from any unusual conformation, so, in this case, it has been

found, that the muscles for closing the lower mandible were much larger and stronger on the side opposite to that where the lower mandible crossed



THE CROSS-BILL.

the upper one; a highly necessary provision, to make amends for the increased quantity of power necessary to give the mandibles equal and uniform strength.

The Puffin is another bird with a strangely large and disproportioned bill, something like a Parrot's, whence it is sometimes called the Sea Parrot: it is also very powerful, and a bite from one of them would inflict a serious wound. When once they seize an object, they are with difficulty induced to leave hold of it; and, as they grasp it with great *force*, a *singular* mode of catching them is practised,

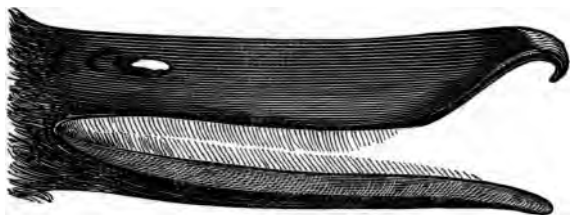
which we shall notice when we come to speak of these birds.

Again, the long tapering bill of the Snipe and Woodcock tribe is the precise instrument wanted, for penetrating deep into moist earth, from whence they extract their food. In this case, strength is not requisite, and would have been quite out of character with the slender neck of this family, as well as unnecessary, for the purpose of collecting small worms; but length was indispensable, and nature has provided accordingly.

Woodcocks and Snipes are such shy birds, that their modes of feeding can rarely be observed; but sometimes opportunities have occurred which prove the truth of what is here said. A couple of Snipes were, by means of a good telescope, actually seen thus boring with their slender beaks in soft mire for their food. They were feeding close to the edge of a lake, pushing their bills into the thin mud, by repeated thrusts, quite up to the eyes, then drawing them back again with great quickness, and every now and then shifting their ground a little.

The bills of Ducks and similar birds, which live partly by suction, and partly on small fish or aquatic animals, merit particular notice from their peculiar adaptation to that office. The inside of them, towards the edge, being thickly set with rows or lines of short, strong, sharp-pointed prickles. These might be mistaken for teeth; this, however, is not their purpose, which is merely to act as a sort of filter. Observe a duck in a brook, crushing, with that quick motion of his head, soft weeds and other substances mixed with the mud. The operation is thus carried on: by

plunging its flat bill into the oozy pulp, the finer portion is sucked up through these tooth-line lines; what it chooses is retained, the rest being thrown out and washed away by the rapid clattering motion of the flat-bill. As a further help, enabling them to



BEAK OF THE SHOVELER DUCK.

judge what is an agreeable and proper food, these birds are furnished with an additional supply of delicate nerves, extending to the very end of the beak; hence it has been conjectured they have some sense of taste, of which birds in general are supposed to be destitute. That this is the use for which these additional nerves is designed, may be further gathered from the accurate examinations of a bill, much resembling a Duck's, belonging to one of the most extraordinary animals in the world, found only in New South Wales. It is called the "Duck-billed Platypus;" having the beak of a duck, the body of an animal, and the feet webbed, and furnished also with strong claws. As it lives under ground generally, its eyes are like the mole's, so small as nearly to prevent its seeing. It depends, therefore, in great measure upon the sense of feeling, and smelling, and tasting belonging to the *beak for its livelihood*; and accordingly it is found

that throughout the whole beak, and more especially at its extremities, there is a fine nervous tissue, which renders it as sensible as the tongue for the taste, or the fingers for the touch, and the nose for smelling.

There is a duck closely allied to our Shovelers, whose beak has a curious addition—certain flaps or loose projections—of which the annexed figure will give a better idea than any description. It is found in Australia, but its habits are little known.



BEAK OF THE NEW HOLLAND SHOVELER*.

In the Goosander, which in other respects partakes much of the nature of ducks, these rows of tooth-like lines are harder, and very much resemble the teeth of a saw, extending along the edge of the beak; thus enabling it to secure even eels and fish, of which it destroys great numbers, and which would, but for this addition, make their escape, and slip away from a surface unprovided with means of holding them fast. The bill of the Rhynchops or Skimmer, which collects its food floating on the surface of the waves, as it swims across the ocean, is another

* *Anas Melanorhynchos*.

very curious instance of contrivance. In most species it will be observed, that the upper part of the beak is larger, and covers the lower part, but in this bird the contrary takes place; for the lower jaw or mandible of the beak is much larger than the upper, so that the bird can use it as a sort of spoon, dipping it into the water, and thus scooping up small fishes, or other light floating particles on which it feeds. How different, in its form, is the beak of this bird from those of the Swallow and Goat-sucker tribe, which, feeding on the wing, adopt a somewhat similar course in catching the various flying insects on which they live. In their case the beak is short, and so weak as to be almost soft, but of vast width, proportioned to the size of the body. This may be easily seen in the common House Swallow, but more particularly in the Swift or large Black Swallow and Goat-sucker, whose heads may be said to be almost all composed of mouth, so wide and gaping are their large short beaks; consequently, when the supply of insects is abundant, they have little more to do than fly with open mouth, and close their beaks upon the objects which cross their flight. This the Swallow does with a sharp clicking jerk, which may be heard by an attentive listener on a calm day, at a considerable distance.

In the Toucan, the beak forms a most prominent and unsightly feature, being quite a deformity in that otherwise beautiful and graceful bird*; and were it as heavy in proportion as the bills of other birds, it would prove a very serious weight, and materially impede its flight, if not quite weigh

* See p. 43.

it down to the ground. It is, however, so remarkably light and hollow as to be no inconvenience whatever, so that the bird can fly with such swiftness and certainty as to catch grapes and other fruit thrown to it, before they fall to the ground. In its operation, too, it differs from those of other birds; seizing and acting upon the substances within its grasp, by a lateral or side-way rather than an up and down or perpendicular motion. But they do not always confine themselves to fruits, their beaks being equally calculated by their muscular strength for crushing the bones of small birds; and in their native forests they are seen perched on high trees, watching the moment at which old birds leave their nests, when down they pounce, and feed on the young ones, and even contest a prize with the monkeys. How skilfully, and at the same time how powerfully, he can use this apparently awkward and cumbrous bill of his, we learn from the way in which a Toucan, which was for some years kept in the Museum of the Zoological Gardens in London, disposed of a small bird. The moment the owner of the Toucan introduced his hand with the small bird into the cage, the Toucan, which was on its perch, snatched it with its bill. The poor little bird was dead in an instant, killed by the violence of the squeeze. As soon as it was dead, the Toucan hopped with it, still in its bill, to another perch, and then placing it with his bill between his right foot and the perch, began to strip off the feathers. When he had plucked away most of them, he broke the bones of the wings and legs (still holding the little bird in the same position), with his bill, taking the limbs

therein, and giving at the same time a strong lateral wrench. He continued this work with great dexterity, till he had almost reduced the body to a shapeless mass. He first ate all the soft parts, leaving the larger bones to the last, which seemed to give him more trouble, particularly the beak and legs.



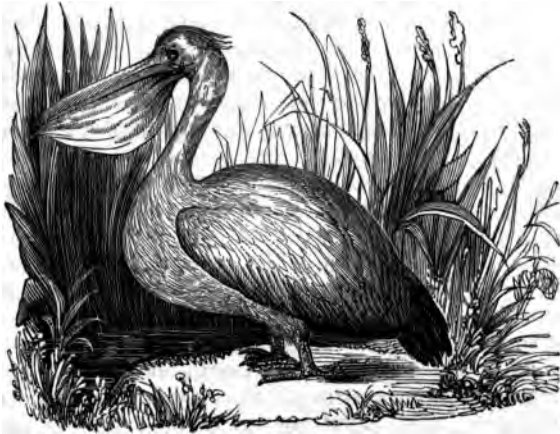
BEAKS OF HORNBILLS*.

In the *Buceros*, or Hornbill, the beak is equally monstrous, and rendered still more hideously disproportioned, by the addition of a large naked bony protuberance on the forehead. As yet, no satisfactory explanation has been given for these enormous protuberances. In the Toucan, indeed, it has been suspected, that the bill is capable of feeling pleasure or pain, and not altogether insensible, like the horny bills of other birds, and the nails and claws of animals; for the above-mentioned bird was frequently observed to scratch his beak with his foot, which he would not have done, had it not produced an agreeable sensation.

The Pelican's beak is also very large, and the under jaw or mandible furnished with a vast pouch, in which it can convey a considerable supply of food for its young. The Avoset, a bird of the

* *Buceros*, *Violaceus*, and *Rhinoceros*.

wading tribe, which collects its food in shallow water or moist sandy places, has a very different sort of beak, of singular construction, resembling flexible flat pieces of whalebone, and not bending downwards as is usually the case, but turning upwards; with this it scoops up spawn, worms, or other soft water insects. One other beak only shall be mentioned,—namely, that of the Spoonbill, which, in its food, partaking of the nature of the Heron, and Duck tribes, is provided accordingly; its interior part being furnished with rough projections, which prevent the escape of such slippery things as small fish, while its wide spoon-shaped end enables it to crush and sift mud and weeds, for worms or soft vegetable matter.



THE PELICAN.

The bones of birds, like those of animals, are for the most part white, but in other respects they differ materially from those of four-footed animals, being composed of a thin, firm, and partly elastic substance, formed in layers, apparently fastened together, and almost always hollow; the cavities never containing marrow, but air, and communicating with the lungs, by considerable openings; whereby they are rendered buoyant and light, to a much greater degree than is generally supposed. Thus a portion of the leg of a goose, about two inches in length, weighed about forty grains, while a piece of the leg of a rabbit (the marrow having been extracted, and both being perfectly dry, and as nearly as possible of the same thickness and length,) weighed seventy-five grains, or nearly twice the weight of the similarly-sized bone of the goose; and yet so firm and strong was this latter, that, although in diameter it was less than one-eighth of an inch, and the solid tubular part not more than one-hundredth part of an inch in thickness, it could not be broken asunder by the hand.

It is upon this principle mechanics and engineers act in constructing strong supports, knowing that if any quantity of material is to be fabricated into a rod of a certain length, the rod will be strong in proportion to its thickness; and that if the figure remains the same, that thickness can only be increased by making it hollow. Therefore, hollow rods or tubes of the same length and quantity of matter have more strength than solid ones of less diameter. This is but one out of the hundreds of *instances, in which the wisdom of man has been*

perfected by studying the mode by which the great Creator accomplishes His purposes.

It is evident, that a creature thus furnished with bones so much lighter than those of other animals, must have a prodigious advantage in raising itself in the air. But besides this superior lightness of the skeleton, these bones, from their hollow structure, act as pipes, supplying air in abundance; and thus not only rendering the bird still lighter, but enabling it to breathe at heights, at which a human being would be gasping for breath. Travellers who have ascended very high mountains, find that when they get near the summits, the air becomes so rarefied and thin, that it is as much as they can do to proceed at a slow pace. Those birds, too, whose habits never lead them into the more elevated regions of the atmosphere, and are therefore, not so abundantly provided with additional capacities for retaining air, have been observed to suffer severely, as was proved by a Mr. Robertson, who took two birds up with him in a balloon, one of which actually died at the height of 15,600 feet; whereas, others better provided with air-cells appear to feel no such inconvenience.

Mont Blanc, the most elevated mountain in Europe, is not quite three miles high; and yet on the top, breathing is extremely difficult; nevertheless, the Condor of South America, the largest bird gifted with the power of flight, will dart upwards suddenly from the deepest valleys to a considerable height above the summit of even the lofty mountain of Chimborazo, which is one fourth part higher than Mont Blanc. Humboldt, the celebrated traveller,

who has given the best account of those regions, says, that he has frequently seen this enormous bird soaring without an effort, and enjoying itself at an elevation much higher than that of the clouds in our atmosphere.

In tracing the bones of the skeleton down the back, another remarkable difference is perceptible. In men and animals, the whole back-bone is more or less moveable, and can be bent ; whereas, in birds, the parts more immediately connected with the back, are either altogether consolidated or stiffened, so as to allow little or no play in the joints. In carving a fowl or any other bird at table, this peculiarity may easily be remarked. The want of motion in the back, however, is amply compensated by a greater number of bones in the neck, and greater power of moving them, which enables birds to turn their heads in all directions, with extraordinary facility. These joints vary in number according to the necessities of the bird ;—thus, the Sparrow, which can perch and reach his food close before him, does not require such pliability, or length of neck as the Swan, which floats on the water, and must seek its food at a considerable depth beneath ; accordingly, we find, that, whereas the Sparrow has only nine of these neck-joints, the Swan has twenty-three,—the advantages of which must be evident to all who have observed the ease and grace with which this stately bird turns its neck in every direction, or buries its head in sleep beneath the soft down of its wings.

The Toucan, the bird with the large beak, mentioned in p. 36, affords a still more curious instance

of this power of movement in the neck, nestling its head so completely among the feathers of its back, as entirely to conceal its enormous beak, and nearly assume the appearance of a ball of feathers; in which form, secured from all exposure to cold, it sleeps



THE TOUCAN.

through the night. The reason for this deviation from the form of skeleton common to other animals is, that this stiffening or consolidation in the parts of the back-bone, is essential, in order to give strength and steadiness to the trunk, in the violent muscular motion required by the act of flying; for

in those birds which do not fly, as the Ostrich and Emu, the joints of the spine or back-bone are more or less moveable throughout. In the joints connected with the tail, (called the *caudal vertebræ*), certain other peculiarities in number and form present themselves, adapted to the habits of the bird. In the Martin and Swallow, where great freedom in the pliability of the tail is necessary, they are most numerous; whereas in the Cassowary, which has no tail, the last joint only is found. This last varies also in form in different birds; for instance, in the Peacock, whose beautiful, fan-like spread of tail-feathers is so well known, this last bone is oval, and placed horizontally.

Another striking feature in the skeleton of a bird, is the breast-bone, or sternum, as it is called, which may be compared to the bottom part of a boat, resting on a deep projecting keel. From the upper sides of the fore parts of this bone, two others project, called clavicles, from the extremities of which, a bone, in the form of the letter V, is projected, called the furcula, though better known by the name of the merry-thought. Our attention is more particularly directed to these three bones, on account of their great importance in facilitating the powers of flight; since it is by the clavicles that the wings are connected with the breast-bone, and it is by the forked-like furcula, or merry-thought, that the wings are kept at a proper distance in flight. Accordingly we shall find, that in proportion to the bird's necessities will these bones be strong or weak. Thus in the Penguin, for instance, where the wings are little *more than fins* assisting in diving, or the Ostrich

and Cassowary, where they are so small and insignificant as merely to assist in balancing their bodies when they run, the keel of the breast-bone is entirely wanting, or the furcula or merry-thought very imperfectly developed. On the other hand, in the Eagle and Hawk tribe, they are proportionably strong, conspicuous, and well defined.

The bones of the wings next come under observation; and these, as may be expected, in birds of prey, and some others, which have to carry their food frequently to a considerable distance, or live much in the air, are of great length; whereas, in domestic fowls, they are very small in proportion to the size of their bodies; and in the Penguins, which, as has been observed, live almost entirely on the water, and, in diving, may be said to fly beneath its surface, they are remarkable for their flattened appearance, as if they had been pressed; approaching more to the form of a fin than a wing, much resembling the flappers of a turtle.

The last bones which remain for consideration, are those composing the legs and feet, which are the more worthy of attention, inasmuch as to a certain degree, upon these, and of the feet more especially, depends the division or classification of birds.

It is not, however, our intention to enter into an explanation of what is called the anatomical structure of these limbs, further than to point out wherein they resemble or differ from our own, and correct a very common mistake into which inexperienced observers are apt to fall. We subjoin two figures, No. 1, representing the leg of a man; No. 2, that of a bird; in which the corre-

with B in fig. 2, of the leg being partly hid in the feathers, and the bend of the leg beneath the tail corresponding with c, the remaining part from that point to the claws answering to our foot and toes.



STILTED PLOVER*.

There are some other beautiful contrivances in the limbs of birds which deserve attention. Look at a bird fast asleep with its head under its wing, resting usually on one leg, and that again resting upon a perch not thicker than one's finger. How apparently difficult and uneasy is such a position; and yet it is all made easy and safe to the bird, by an admirable piece of internal mechanism, which may be briefly thus explained. Connected with the thigh-bones and leg, a set of muscles run down to the very extremity of the toes, so contrived and

* *Charadrius himantopus*.

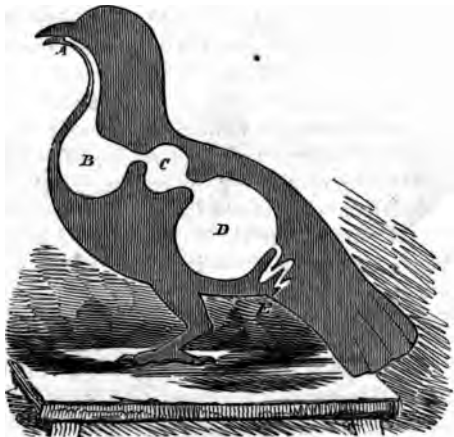
placed, that when, by pressure downwards, the limb bends, these fine muscles are pulled in, and therefore contract the toes, thus making them grasp more firmly whatever the bird is resting upon; just as if a set of fine strings ran over pulleys to certain hooks, and were acted upon at the other end by a weight or pressure, and thereby made to draw in the hooks.

But there are some birds, and very large ones too, such as Herons, Cranes, and certain other wading birds, which sleep standing on one foot, the leg being kept perfectly straight; and in these birds, as the foot rests upon the ground, any grasping power acting upon the toes would be useless. In this case, therefore, what is required, is some contrivance to keep the leg firm, that it may not give way, in consequence of any swinging or balancing motion of the body, which would inevitably upset the sleeper. Accordingly, the upper part of what we shall call the heel bone, at *c*, is fitted in a very curious manner into the lower part of the leg bone above it, and precisely answers the purpose required of the bird, affording a sufficient degree of resistance by the bending of the leg, to counteract the effect of any overbalancing of the body. The bird, moreover, has a power over this well-contrived prop, and thus bends its leg or keeps it perfectly stiff, as best suits its convenience.

CHAPTER III.

INTERNAL STRUCTURE.—DIGESTIVE ORGANS.—GULLET, CROP, STOMACH—ADAPTATION OF, TO DIFFERENT HABITS OF BIRDS.—GASTRIC JUICE—ITS USE AND PROPERTIES.—GIZZARD, ITS GRINDING POWERS.—RESPIRATION OF BIRDS.

HAVING briefly pointed out the most prominent features of the skeleton, as influencing the general form of birds, we shall now proceed to give a short sketch of the structure and uses of some of the internal parts, commencing with those for the supply and consumption of food. The following figure may assist our explanation.



The gullet (*œsophagus*) A, opens into the crop (*ingluvies*) B, which forms a sort of bag; on quitting this, it extends to what is called the second stomach, C, (*infundibulum*, or *ventriculus succinturiatus*,) usually funnel shaped, from whence it opens into the third stomach or gizzard, D, (*ventriculus callosus*,) communicating with the intestinal canal or bowels, E, which vary very much in length, in different birds, though, on the whole, they are shorter than in the class of four-footed animals. The annexed plate is merely intended to convey a general idea of the stomachs of birds, and must by no means be depended upon as an accurate representation, applicable to any particular family, since, in each, there is a marked variation with respect to the size, form, and other internal arrangements; a full explanation of which, though extremely interesting, from the beautiful adaptation to the habits of the bird, cannot, in this little work, be attempted; a few, however, may be briefly pointed out.

Thus, in what are called the carnivorous birds, feeding on flesh or fish, containing hair, feathers, or bony substances, which are of difficult digestion, the gullet is of a vast size and capacity compared with the other parts, often exceeding in width the stomach itself. In some of the water birds it is large enough to contain even a whole fish, till the proper stomach is ready to receive it. In watching Cormorants, at a distance, with a telescope, they may be sometimes seen quietly reposing, with their mouths half open, and the tail of a fish hanging out, the remainder gorged in this capacious gullet; and Sea-Gulls will swallow bones of three or four inches in length; the

lower end only reaching the stomach, whilst the rest continues in the gullet, and slips down gradually, in proportion as these lower ends are consumed.

The usual food of Gulls consists of flesh; but when confined, they will thrive very well on a diet with which they must be perfectly unacquainted by the sea side. We may form, too, some idea of their voracity, from the quantity consumed by a Gull kept and fed in a garden, which devoured, in one day, fourteen mice and two rats. Another was seen to swallow an entire rat, an operation, however, not accomplished without some difficulty, the bird making several efforts before it succeeded, and even then the tail remained visible for several minutes. But the voracity of Gulls is exceeded by some other fish-eating birds. Thus the Pelican, it is said, will, at one repast, if hungry, devour as many fish as would suffice for half-a-dozen people; and, like the Gulls above-mentioned, will, in confinement, snap up rats and other small quadrupeds. The Gannet, another fishing bird, has been known to swallow an entire cod, of moderate size; and a Puffin, kept in a menagerie, to eat as much fish as its whole body weighed. Well might the eye-witness to such an extraordinary exhibition of gluttony declare, that "he never saw so unsatiable a devourer," and, what was still more surprising, "that the body did not appear to swell the bigger*." Of the destructive character of Herons, with regard to fish, some idea may be formed, from no less than five eels having been found in the stomach of one which was shot. Voracity is not, however, entirely confined to the

* Evelyn's *Memoirs*.

fishing tribe, for some that live upon fruits can dispose of an equally surprising quantity. For instance, the Cedar Bird of America, a sort of Jay, will devour every fruit or berry that comes in its way; and will gorge itself to such excess, as sometimes to be unable to fly, and may be taken by the hand. Some, indeed, although wounded, and confined in a cage, have eaten apples until suffocation deprived them of life in the course of a few days; and when opened, they were found to be crammed to the very mouth.

Very frequently, in woods, or solitary places, round balls or lumps of semidigested substances, composed of small bones, claws, feathers, hair, &c., may be found on gate-posts or rails. These are the discarded remnants of food thrown from the gullets of Hawks, Owls, &c., which, if allowed to pass into the stomach, might remain so long in an undissolved state as to prove injurious to the living bird. To defend the tender lining of this inner passage, the sides and under-surface of the tongue, and the upper part of the gullet, are furnished with numerous glands, supplying a slimy moisture, which softens the gullet, and smooths the way for the admission of the hard substances which are occasionally introduced.

In the upper and back part of the palate of the Ostrich, there are two remarkable reservoirs, from which a very tenacious mucus may be expressed, of infinite importance to the bird: for it is so little choice in its food, that in the stomach of one belonging to the king, which died at Windsor, and was forwarded to the Zoological Society for dissection,

some pieces of wood, of considerable size, several large nails, and a hen's egg, entire and uninjured, were discovered; and in another, in addition to some long cabbage-stalks, were masses of bricks, of the size of a man's fist.

This large space and capacity of the gullet is clearly intended to counterbalance the disadvantages of uncertain subsistence. Thus, Herons and Cormorants will devour as much fish at once, as will last them for a long time.

There is another peculiarity, too, in the gullets of fish-feeding birds, that it is usually wider near the mouth, thus enabling them to gulp down their slippery food in an instant, without giving them an opportunity of escaping. In all these birds, the width and space of the gullet does away with the use of the crop, which is accordingly, in this class of birds, exceedingly small, or altogether wanting.

The crop is furnished with a number of vessels secreting an oily fluid, something similar to the liquid in the gullet just mentioned. In such birds as feed their young from the crop, these vessels are observed to swell considerably at that particular time, in order to provide a great increase of this unctuous liquid. Those who have kept Turtle-doves, or Pigeons, must be familiar with the manner by which the young birds receive their food, almost thrusting their heads down the very throats of the old ones, to reach the nourishment provided in the enormous crops of their parents, where this lubricating liquid is provided in great quantity, when the nestlings are young; but decreases in abundance as *they grow older*, and require less nourishing food.

This portion of the digestive organs is the most capacious in what is called the gallinaceous or poultry tribe, which feed chiefly on grain, requiring much softening; and there, accordingly, we find the food retained, till it is sufficiently softened to pass onwards to the stomach. And in this tribe it almost forms a distinct bag, as may be easily seen on examining a fowl,—the gullet opening into it at the upper part, and quitting it about the middle. Its texture is very fine and thin; so much so, that the craw of a full-sized Turkey will contain nearly a quart, and when scraped and varnished, is sufficiently light to form small air-balloons, for which purpose they are now prepared, and sold in London.

We next come to the part called the second stomach, which, like the rest of the digestive organs, varies very much in size, and internal arrangement. In some birds it is extremely small; in certain cases, as in the Kingfisher, it is actually wanting; whereas, in the Ostrich it considerably exceeds even the real stomach, being capable of holding several pints of water. It is in this cavity that the grand business or process of digestion is carried on, it being abundantly supplied with a number of glands or vessels, secreting that very curious liquid, called the gastric juice, which acts most powerfully on every variety of food. They are called the solvent glands on this account; and, as birds generally require a more rapid digestion, they are larger, and more distinct from the other organs of digestion, than in other animals.

There may also be another reason why this liquid may be more essentially necessary for birds, which

seem to require greater warmth than other animals, since it is found that their blood circulates more rapidly, and is warmer than the blood of the human body. For instance, the heat of the human body will raise the mercury of a thermometer to about 95 or 96 degrees, the true blood-heat being 98: but if the same thermometer is placed under the wing of a Parrot, or a Canary, it will raise it to 100 or 101; of a Fowl to 103; of a Sparrow or Robin, sometimes to 110 or 111; and, no doubt, if tried on certain other birds, requiring additional warmth, it would be found to rise still higher. Now the gastric juice, from some very ingenious experiments*, is supposed to contain a much stronger principle of life and warmth than other liquids; thus when water, salt and water, and gastric juice were exposed to great cold, the gastric juice was the last to freeze, and the first to thaw. The greater portion of this juice, therefore, found in birds, may be an additional means by which the wisdom of God furnishes them with more warmth, and enables many of them to resist very strong degrees of cold. In proof of their endurance of cold, at the bird-market at St. Petersburg, in Russia, during the intensity of those dreadfully cold winters, several thousand cages, containing birds of every description, are hung on the outside of about eighty shops; in a part of each cage, a small quantity of snow is placed, which is said to be necessary to keep them alive. That birds, originally from warm climates, suffer from the colder regions of the North, is, to a great degree true; but by far the greatest number of birds,

* Spallanzani.

found dead in our severe winter, perish not from the inclemency of the weather, but the deficiency of food; for instance, our little Wren is just as active and cheerful in the severest frost as the warmest summer's day,—his supply of food, consisting of small insects, concealed under the bark of trees, never failing him.

There is another singularity in this mysterious liquid, namely, the different force with which it acts on the various substances used for food by different birds. Thus the gastric juice in the stomach of those birds which live on flesh, acts very sparingly on vegetable substances. On examining the castings or pellets of some eagles, which had been occasionally fed with dead pigeons, it was found, that the vegetable food, peas, wheat, and barley, which had been swallowed by these birds of prey, enclosed within the crops of the pigeons, remained entire, being only somewhat enlarged by heat and moisture; though the fleshy substances, even to the very bones, were entirely consumed*.

Again, it has been observed, that this juice will not act upon the grain swallowed by poultry, and other granivorous birds, while it remains whole and entire.

This fact has been further proved by actual experiment. Some gastric juice was poured into a cup containing some whole seeds, but it produced no effect upon them till they were crushed. Hence it has been found, that if oats and barley given to horses, are previously killed by heating, and crushed, the animal only requires half the quantity, and yet thrives equally well.

* *Zoological Journal*, vol. x., p. 186.

In considering the real stomach, or gizzard, by which name it will be more familiarly known, we shall find additional cause for admiration, in the mode by which Providence, with reference to the food introduced, so nicely balances the grinding powers of the gizzard with the dissolving or melting powers of the gastric juice. This third or real stomach differs, like the gullet, crop, and second stomach, very materially in different birds; but, generally speaking, the action of this gizzard may be compared to that of a coffee-mill, grinding down the various substances introduced, into a pulpy matter. In those which feed on flesh and insects, substances of no very hard texture, this stomach appears as a thin membranous bag, in comparison with the thick muscular globes or gizzards of the grain-devouring class; and the reason is evident; for the animal matter on which they feed requires no actual grinding to reduce it, the action of the gastric juice being sufficient for the purpose of dissolving it; whereas, without the powerful working of this grinding-machine within its body, a fowl, for instance, without a gizzard, would receive no sustenance from the grains on which it depends chiefly for support, since we have seen that until these grains are bruised and crushed, the gastric juice will not act upon the mealy or nourishing matter contained within the husk. And there are reasons for supposing, that in this process, nature acts according to certain wise laws, in most cases suiting the quantity and quality of the gastric juice to the necessities of the bird. One of our ablest anatomists*, indeed,

* Sir E. Home.

concluded that the stomach became more and more fitted to economize the food, as the country to which the bird belongs became less fertile, or less able to provide the requisite supply. In some cases, where the gizzard is imperfect, and is unfitted to act the part of a grinder, the bird is led by instinct to provide itself with a singular substitute.

We have alluded to the strange matters found in the stomach of the Ostrich which died in this country. Now, the reason why these birds and some others, such as the Emu and Cassowary, which move over the ground by running instead of flying, swallow such strange hard substances, is this: their digestive organs are, generally speaking, weak; accordingly, their well-known propensity for swallowing glass, iron, and other such substances, is an instinctive remedy for this deficiency, which is further assisted by their habits of running; this motion producing such an increased shaking or rubbing together between these hard substances which they swallow, and their natural food, as to render the strong action of a gizzard in a great degree useless. Those who take an interest in poultry are aware that they are in the constant habit of picking up small stones. Many persons consider this as an accidental occurrence; but it is by no means so: they do it like the Ostrich, for the purpose of assisting the powers of the gizzard in grinding the shells and outer coats of the grains, so as to render them fit for final digestion. In the stomach of a Turkey-hen, nearly one hundred stones have been counted, and in that of a Goose, a still larger number; but these are *nothing to the extraordinary contents of a common*

fowl's stomach, in which were found three pieces of flint, three metal buttons, fourteen nails, several of which were very sharp, in addition to a great number of small stones*. The coat of the bird's stomach, with the exception of some slight scratches on the inner membrane, was in its natural state; probably, however, if the gizzard had been closely examined, it would have been found diseased or defective in its operations, thus inducing the fowl to make up its deficiency by so unnatural an addition.

But the best way of understanding its curious mode of working, will be, to follow the progress of a meal swallowed by a fowl, between whose stomach and that of a corn-mill, naturalists have traced a very close resemblance. The grain is first passed by the gullet into the craw, which may be compared to the hopper of the mill, through which the grain is gradually emptied on the grinding-stones. There, as we have seen, it remains a certain time, till it is considerably softened; and then, not all at once, but in very small quantities, in proportion to the progress of trituration, just as the hopper allows the grain to dribble into the central hole in the upper mill-stone, does it pass onwards to the gizzard, where it is thoroughly bruised and reduced. Many experiments have been made to ascertain the precise manner in which the gizzard acts; but we are still much in the dark respecting it. We may learn, however, a good deal, by examining a very lean young fowl, when, on removing the feathers from the side of the belly nearest the gizzard, its motion can be both felt, seen, and heard. On pressing with

* *Edinburgh Philosophical Journal*, No. III., p. 206.

the finger, the muscles will feel to the touch as hard as stones ; when they relax, the grain, upon which they were then working, passes on, and a further supply, as in the case of the mill, passes under these natural rollers. These alternate actions succeed each other slowly but regularly ; and on placing the bird close to the ear, as the food and stones roll under the pressure of the muscles of the gizzard, a sound not unlike the noise of the tide rolling upon a shingly shore, may be distinctly heard at intervals, as if the waves were ebbing and flowing ; and during all this process, the gastric juice slowly flows in from the lower part of the gullet or second stomach, and mingles intimately with the digesting food.

We have stated that the fowl best calculated for this examination should be a full-grown young one ; but although, in this almost immature state, the gizzard is fully developed, if we were to dissect a chick, we should find not a vestige of a gizzard, but merely a thin pellicle or skin. And it is for this reason, that whereas the young fowl is nevertheless old enough to live entirely on grain, and therefore requires the assistance of a gizzard, the little chick, on emerging from its shell, for a short time lives on soft food, and requires no such aid. As it advances in age, however, the pellicle gradually thickens, till at last, by pressure and rubbing, it becomes a hard and grinding membrane.

From the different construction and digestive powers of the stomachs of birds, it must be evident that some are able to continue a much longer time without food than others. An Eagle has been known to fast for three weeks ; those who had the charge

of it having forgotten to provide its usual supply of food. It soon however recovered its strength, and did not appear to suffer from its extraordinary abstinence. How long other birds can sustain hunger we can have few opportunities of learning, but probably it will be found that such as are most likely, from their habits and particular sort of food, to be more exposed to a precarious and doubtful supply, are, generally speaking, best provided against the chance of suffering. But this is not always the case, for geese and fowls, which are rarely without the means of supplying themselves, have been known to remain a surprising length of time in a fasting state. A favourite hen, which had been missed for upwards of four weeks, was fortunately found at the bottom of a deep well by a person who went down to repair it: the poor bird, when discovered, was perched on a small piece of timber floating on the water, and when taken up was in a very exhausted state, but soon recovered.

A goose was accidentally shut up in a shed, and supposed to have been carried away by a fox, when, at the expiration of three weeks, it was discovered alive; for a few days it continued in a weak state, but gradually resumed its strength.

Having taken a short view of the frame-work and internal construction of a bird, with reference to the disposal of its food, we shall next consider some other of the vital functions, commencing with those of breathing and voice. The lungs of men and animals occupy, as is well known, a large portion of the chest, whereas, in birds, the space occupied *is not only* much smaller, but the lungs themselves

are of a more firm and compact texture. At the same time they are most plentifully supplied with air-cells, communicating with other cells, profusely distributed over every part of the system, by which their bodies are in a manner blown up and rendered buoyant; a considerable portion of the skeleton moreover, as we have shown, being formed into receptacles for this light and elastic fluid, of which birds partake in so much greater a degree than most other parts of the creation. In fact, a bird, destined as it is to live in air, may be almost called an absolute air-vessel, so completely does air fill up and circulate throughout its whole frame. While men and other land animals breathe in air through the nostrils alone, a bird respire through a variety of other channels. A wounded Heron was observed to live a whole day, breathing solely through a broken portion of the wing-bone*. Other experiments have confirmed the fact; the fractured portion of a bone that had been separated, when immersed in soap and water, was observed to emit bubbles from the part nearest the body, proving beyond a doubt that it contained air in considerable quantities.

The quills of the feathers are also air-vessels, which can be emptied and filled at pleasure.

There is a bird called the Gannet, or Solan-Goose, which is a beautiful instance of this wonderful provision; it lives on fish, and passes the greater part of its time either in the air or on the water, even in the most tempestuous weather, when it may be seen floating like a cork on the wildest waves. To enable it to do so, with the least possible inconvenience, it

* See *Linnean Transactions*, vol. xi., p. 11.

is provided with a greater power of filling and puffing itself with air than almost any other bird. It can even force air between its skin and its body, to such a degree, that it becomes nearly as light and buoyant as a bladder. This buoyancy, however, entirely prevents its diving after fish; Nature, therefore, has applied a remedy by giving an extraordinary



THE GANNET, OR SOLAN-GOOSE.

force and rapidity of flight, in enabling the creature to dart down on a shoal from a great height. This *velocity is so prodigious*, that the force with which it

strikes the surface of the water is sufficient to stun a bird not prepared for such a blow, or force the water up the nostrils. But the Gannet has nothing to fear from either of these causes, the front of its head being covered with a sort of horny mask, which gives it a singularly wild appearance; and it has no nostrils, a deficiency amply remedied by the above-mentioned reservoirs of air, and capacity for keeping them always filled. Some notion may be formed of the rapidity of their descent by a curious mode of taking them, occasionally practised by the fishermen in the North. A board is turned adrift, on which a dead fish is fastened. On seeing it, the Gannet pounces down, and is frequently killed or stunned by striking the board, or is secured by its sharp-pointed beak being actually driven into the wood like a nail, and holding it fast.

There is another bird even more copiously supplied with air than the above, called the Chavana Fidele, in which the skin is entirely separated from the flesh, and filled with an infinity of small air-cells, the legs and even toes partaking of the same singularity, so that it appears much larger than it really is, and when pressed by the finger, the skin sinks in, but resists pressure like a foot-ball, or other elastic body. The air, in this case, is supposed to assist in producing a powerful screaming voice, the bird being a wader, and not calculated for lengthened flights.

Generally speaking, the bones of birds, excepting when young, are without marrow, the gradual absorption of which, till the bone becomes a hollow tube, is most easily perceptible in young tame Geese, when

killed at different periods of the autumn and winter. From week to week the air-cells increase in size, till, as the season advances, the air-bones become transparent. Towards the close of the summer and beginning of autumn, although in external appearance the young Goose resembles the parent, no trace of air-cells can be discovered in its bones,—the interior being still filled up with marrow, which does not entirely disappear till about the end of the fifth or sixth month.

In the Eagle, Hawk, Stork, Lark, and other birds in the habit of soaring, the air-cells are very large, particularly those in connexion with the wing. On the other hand, Ostriches, and those birds which either never, or seldom fly, those of the wing are comparatively small; but as a compensation, it has been remarked, that as great strength as well as lightness are desirable to enable them to run swiftly, their bones are almost all of them remarkably hollow. Such are some of the advantages derived from this abundant supply of air.

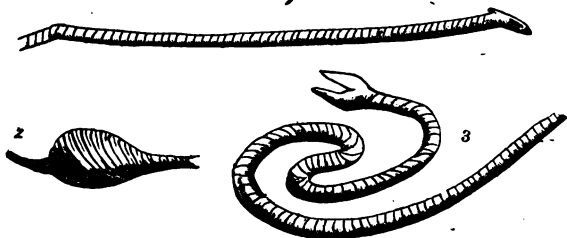
We have alluded to the additional warmth possessed by birds, in comparison with other animals, to which this greater quantity of air must essentially conduce. We may here again refer to the Gannet, which, passing so much of its time in the depth of winter exposed to the severest weather, would, if not provided with additional means of keeping itself warm, often perish from cold; but having, as we have observed, a power of filling up the space between its flesh and outward skin with air, it is thus furnished with a light, but at the same time admirable coat, *which effectually prevents it from feeling the effects of cold, however severe.*

CHAPTER IV.

ORGANS OF SOUND.—DUCKS, CRANE, GOAT-SUCKER, BELL-BIRD, ETC.—DISTANCE AT WHICH SOUNDS MAY BE HEARD.—PLUMAGE.—STRUCTURE OF FEATHERS.—GOOSE-PLUCKING.—SUMMER AND WINTER PLUMAGE.

FROM the organs of breathing we naturally proceed to those of voice. The striking difference existing between those of birds and other animals, may, perhaps, be best explained by comparing them with the organs of sound in the human species. We utter sounds, and speak through a certain tube, communicating from the mouth to the lungs, called the trachea or windpipe, which is furnished with very beautiful contrivances for the purposes of sound. In like manner, birds are provided with windpipes; but, unlike men and animals, they have a double set of instruments, if they may be so called, one at the upper, and the other at the lower end of the windpipe; and as it is in the lower part of the windpipe chiefly that the peculiar contrivance for uttering sounds is to be found, which may be compared to a clarionet, or similar musical instrument, it so happens, strange to say, that a bird might utter notes even after its head was cut off. It is astonishing what powers and varieties of note this simple pipe is capable of producing. A good deal depends on the construction of the windpipe itself, and several, as in the Duck tribe, are very curiously formed. It usually consists of a straight tube, of a stiff horny

character, sometimes of uniform diameter throughout, at other times gradually swelling towards the middle, or with roundish enlarged cavities, as in the tufted and golden-eye Ducks, though these enlargements



are more frequently at the end of the tube. The first of the annexed figures represents the tube, the second the horny cavity, and the third, twisted windpipe, is that of the Crane, which is singularly bent, as it enters within the breast bone; the cleft end is the internal termination; the other its junction with the mouth.

It would be needless to dwell upon the infinite variety of notes of birds, but a few of the most striking deserve notice.

In this country we find, indeed, few peculiarities, but nevertheless there are some. Thus, every body knows that Jackdaws, Starlings, and Magpies, may be taught to speak words, like Parrots; but near a clergyman's house, in Northamptonshire, a Blackbird was in the habit of crowing constantly, as accurately as a common cock, and nearly as loud. *Perched upon the top bough of an ash-tree, it might*

be seen crowing away; occasionally indulging in its natural song, but this only for a second or two; for it soon began again to crow; and when the cocks from a neighbouring poultry-yard answered it, the little bird seemed delighted, and seemed as if it was trying to rival them in the shrillness of its note. It was supposed that it must have been bred near the spot, and learned the cry from hearing the cocks*.

The Goat-sucker, Night-jar, Hawkmoth, (or, as it is better known, in many places, the Wheel-Bird, owing to its making a sound much resembling a spinning-wheel,) is another bird not uncommon in this country during the summer months, frequenting heaths and commons. The best time to hear it is about dusk, when it may be cautiously approached, and discovered sitting with its head downwards, repeating, for a considerable time, its rough jarring cry.

In foreign countries, however, there are birds possessing a far greater power of imitation. We need scarcely mention the Mocking-Bird of North America at the head of the list; so widely spread over the world is its character, not only having the power of imitating the note of every bird it hears, but also that of animals and other sounds. It can bark like a dog, mew like a cat; then all of a sudden make the exact noise of a trundling wheelbarrow; sometimes it will call the hens together by screaming like a wounded chicken; or entice the house-dog from the fire-side by whistling for it in its master's well-known summons.

There is a species of Crow in India, (*Corvus*

* See *Mag. Nat. Hist.*, vol. iv., p. 433.

leucotophus,) which assembles in flocks of about twenty or thirty, in the recesses of forests, and whose note so exactly resembles the human voice in loud laughing, that a person, ignorant of the real cause, would fancy that a very merry party were close at hand.

There is also a species of Skylark in India, whose powers of imitation are described as astonishing. One of these birds had so completely learned the wailing cry of a kite soaring in the air, that although the lark's cage was in a room, and within a few feet of the listener, he could scarcely persuade himself that the cry he heard did not, in reality, proceed from a distant kite. They are taught by being carried daily to the fields and groves, in close-covered cages, and are so prized, that a fine, well-instructed bird, has been known to sell for 4*l*.

We have spoken of our English Goat-sucker, but there are many of this family never seen in our island, and far more interesting. In South America there are several sorts, whose notes are so singular, that the natives look upon them with a degree of awe and reverence, and will never kill them. They have received names from the different words they are supposed to speak, and absolutely bewilder strangers on first arriving in those parts. Thus, one of the most common will alight close by the door, and, on a person's going out, will flit, and settle a few yards before him, crying out, "Who are you? who, who, who are you!" another calls out "Work away, work away, work away!" a third, in a mournful tone, says "Willy come go; Willy, Willy, Willy come go!" *While another*, which is also a very common one, is

known by the name of Whip-poor-Will, from constantly repeating these words. But the most extraordinary note yet remains to be mentioned, that of the Campanero, or Bell-Bird, found in South America, and also in Africa (*Cotinga carunculata*). A traveller in the first-mentioned country, speaks of it as never failing to attract the attention of a passenger, at a distance of even three miles, when it may be heard tolling, like a distant church-bell. When every other bird, during the heat of the day, has ceased to sing, and all nature is hushed in midnight silence, the Campanero alone is heard. Its toll sounds, then a pause for a minute, then another toll, then another pause, and then a toll, and again a pause. In Africa, two travelling missionaries have given nearly the same account, but at somewhat greater length. They were journeying onwards, in the solitude of the wilderness, when the note of the Campanero fell upon their ear. “‘Listen,’ said my companion, ‘did not you hear a church-bell?’ We paused, and it tolled again; and so strong was the resemblance, that we could scarcely persuade ourselves that we did not hear the low and solemn sound of a distant passing-bell. When all was silent, it came at intervals upon the ear, heavy and slow, like a death-toll; all again was then silent, and then again the Bell-Bird’s note was borne upon the wind. We never seemed to approach it, but that deep, melancholy, distant, dream-like sound, still continued, at times, to haunt us like an omen of evil.”

How the Bell-Bird utters this deep loud note is not known, though it is supposed that a fleshy pro-

tubercle on its head, which, when inflated with air, stands up like a horn, is, in some way, the cause; but the Goat-suckers, in all probability, are indebted to their peculiar width of mouth and throat for this power of voice; for many other birds, in uttering loud notes, are observed to puff and swell out their throats in a very extraordinary manner. For instance, our little summer visitant and sweet songster, the Blackcap, when warbling forth his finest notes, distends its throat in a wonderful degree; and those who have chanced to see a Brown Owl in the act of hooting, will have noticed, that they swell up their throats to the size of a pigeon's egg. And persons, who have fine ears for music, have ascertained, by comparing their notes with a pitch-pipe, that their variations are according to certain rules; most of them hooting in B flat, though some went almost half a note below A. This strain upon the throat is sometimes carried to a pitch which endangers the bird's life. The bird-fanciers in London, who are in the habit of increasing the singing powers of birds to the utmost, by training them by high feeding, hot temperature of the rooms in which they are kept, and forced moulting, will often match one favourite Goldfinch against another. They are put in small cages, with wooden backs, and placed near to, but so that they cannot see, each other: they will then raise their shrill voices, and continue their vocal contest till one frequently drops off its perch, perfectly exhausted, and dies on the spot. This will even happen sometimes to birds in a wild state. In the garden of a gentleman in Sussex, a *thrush* had, for some time, perched itself on a par-

ticular spray, and made itself a great favourite from its powerful and constant singing. When one day it was observed, by the gardener, to drop suddenly from the bough in the midst of its song. He immediately ran to pick it up, but found it quite dead; and, upon examination, discovered that it had actually broken a blood-vessel by its exertions, and thus perished.

That the notes and cries of birds serve them instead of language, there can be little doubt; one person indeed is on record, who, having passed much of his time in boyhood alone, in lonely situations, had by close attention acquired such a knowledge of this language, that, from the song of the parents, he knew where the nests were situated, whether they contained eggs, or whether the brood was hatched, knowing even the number of young birds, and their age, before he saw them*. In fact, a common observer may, in many instances, understand their different notes, and all their different wants and emotions, as well as the birds themselves do.

Thus, while walking in a wood, if we happen to get sight of a flock of Jays before they chance to notice our approach, they will be seen enjoying themselves, and chattering in seeming confusion. Suddenly one will be heard to utter a peculiar short deeper-toned note, when in an instant all is silent, and they may be seen skulking off one by one, only to be heard again, when they have sheltered themselves at a considerable distance. Crows and Field-fares, with many others of what are called congre-

* See *Quarterly Review* on Lord Holland's *Life of Lope de Vega*; vol. xviii., p. 36.

gating birds, or those that live together, act in the same manner. Every sportsman knows how difficult it is to get within gunshot of a large flock of these birds, though they appear to be so busily employed in picking up their food in a meadow, that it might be supposed they saw nothing else.

The fact is, they very often do see nothing, and think of nothing, beyond the food they are in search of; because, on the bough of some neighbouring tree, a good look out is kept by one of the party, and the moment this sentinel Crow or Rook gives out his well-known caw of alarm, or the Fieldfare its peculiar jarring cry, away go the main body, beyond the reach of the fowler, who thought he could escape observation by lurking behind a tree, or stealing under a hedge-bank. A person familiar with the notes of birds has no difficulty whatever in distinguishing between the sounds of pleasure and alarm. If he hears the Swallows screaming in a certain note, he is as well aware that cats or hawks are about, as if they could tell him so in common language. We once happened to hear a loud outcry amongst a parcel of Sparrows, Tomtits, and Chaffinches; the noise was evidently not their usual note of pleasure, neither was it the clamorous scream they utter when fighting. The bustle occurred within a yard of our window, too near for a Hawk to venture; neither was there a cat within sight,—nothing of the sort; but still the din increased, and the bush shook again with flutterings of wings, and clacking of tongues: when, at last, we espied a pair of inquisitive eyes, and a little sharp snout poked out from the twigs, at the bottom of the bush. It was a weasel, which, on seeing that it was

discovered, took to its heels; and in an instant the cries of the Sparrows ceased, and the whole party dispersed.

It is scarcely necessary to remind the reader of the language so well known in the poultry-yard. The cluck of the Hen, when she calls her chickens together; her shriek, if a Hawk is seen flying over the brood, and the rapid rush of chickens under her wings; and her cackle of pride or pleasure, when she announces to the whole farm-yard the important fact of her having laid an egg. Even a young chicken has a power of language easily understood. Take, for instance, one of four or five days old, and hold it up to a window where there are flies, and it will immediately seize them, with a little twittering note of pleasure; but if a wasp or a bee is placed before it, at once its note becomes harsh, expressing its dislike as well as fears.

Nobody can doubt, who sees a bird singing, clapping its little wings, turning from side to side, and glancing its bright eyes in all directions, as if courting attention and admiration, that it feels delight and satisfaction. Did we require further proof, we have but to recollect that the song-bird is most on the alert with the music of his voice, when its affection and interests are awakened by attention to its mate, during the time of rearing its young. The male may then be generally seen on some twig or bough, at no great distance from the nest; in most cases becoming silent, if aware of a stranger's approach, or exchanging the note of pleasure, for another of anger or complaint, which too often produces the very evil it dreads. Thus, the Nightingale,

one of our shyest and most timid birds, will frequently discover its nest, by making a jarring noise, and also a snapping and cracking, at the same time pursuing people along the hedges, as they walk, when its young are in a helpless state. The male Blackcap is still more incautious, for it will commence and continue its song, even when sitting on its nest, and thus too frequently become the innocent cause of the capture of its brood.

The loud cries of other birds, however, particularly of many of the migratory water-birds, which fly by night, are evidently intended for the purpose of keeping them together. Few have been without opportunities of listening, in the silence of the night, to the incessant cackling of a flight of wild Geese, on their way to some distant spot, high in the air. In the northern seas, sounds of this sort are more frequently heard, from birds which never come so far to the southward. Of these is the red-breasted Diver, which seldom quits the water by day, but during the night may be known to be on the wing, at a vast height, by a peculiarly melancholy and distressing scream, exactly resembling that of a young child suffering from agonizing pain. We have listened, by the hour together, to the repeated and successive wailings of these wild melancholy birds; first, the scream is faint, and so distant as scarcely to reach the ear; then increases as the bird passes nearer,—till, as it continues its flight, the sound gradually dies away. Soon, another scream from another quarter is faintly heard; and so on, till the dawn appears, when they betake themselves to the element on which they pass the day.

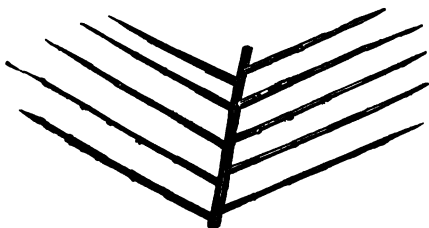
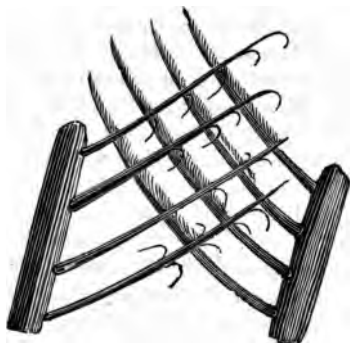
The distance, too, at which some birds may be heard is very extraordinary. The brown Crane of North America, which soars to an amazing height, when almost out of sight utters a note which is so distinctly heard, that an inexperienced sportsman would imagine it to be close at hand.

From the notes and voices of birds, we will next proceed to their feathers and wings. A more beautiful, light, and compact piece of machinery, or more perfectly adapted for the purposes for which it is intended, cannot be conceived, than a feather. For beauty, look to the colours and shades presented by the glossy plumage of our Peacocks and Pheasants, with which every body is familiar; but their colours, beautiful and brilliant as they are, shrink into insignificance compared with the dazzling coverings of many others, found only in the hotter climates of the globe. It is difficult to make a selection amongst the splendid variety which might be named; but perhaps, the *Ptiloris Paradiscus*, a bird of New Guinea, little known, is one of the most beautiful. It is impossible for any written description, or even coloured representation, to give an accurate idea of this most splendid creature. Its size is about that of a small pigeon, and its general colour is a deep velvet black, glossed on the upper parts with rich brownish lilac, which in some lights leaves the margin of each feather black, and gives them a scale-like appearance. The whole part of the head is covered by a crown of smaller scale-like feathers, of a splendid metallic green; each colour alternately preponderating, as the direction of the light is varied. The middle of the throat is occupied by a

large patch of the same colour, which, as it approaches the breast, divides and forms a stripe on each side. The chin and breast appear to be of an intense velvety black, but when held in certain lights, become glossed with the most beautiful reflections of lilac and purple. The feathers on the body are yet more changeable; in some directions, they seem entirely black; in others, this apparent black is mingled with a rich olive green; while, in another position, it is brilliantly reflected and relieved by shades of lilac, purple, and the most vivid green. All this gorgeous apparel, however, is confined to the males, the female being clothed in a homely and russet-brown attire, attracting little notice.

Of a feather's lightness, we may form some idea when we find that the largest quill of a Golden Eagle weighs only sixty-five grains, and that seven such quills do not weigh more than a copper penny-piece; that the feathers of a common fowl, which weighs thirty-seven ounces, weigh only three ounces; and that the entire plumage of an Owl weighs only one ounce and a half. Meant as they are, some for covering, and some for strength, we shall find them, on examination, very differently put together. The light downy part, when examined through a microscope, will be found to bear little resemblance to the flat part or blade of the quill. If it were not so, a bird would scarcely be able to fly at all; for when the flat of the wing was pressed down, the air would pass through it and yield no resistance. The fibres of the downy part, we see, have little connexion with each other; they have short and loose side

shoots, just sufficient to mat them together when pressed close to the skin; whereas, the side shoots of the quill-feather hook and grapple with one another, so as to make one firm and united surface. Some idea of this may be formed from the annexed figures, the second of which represents a piece of the finest down magnified.



But others there are, much stronger and stiffer than the wing quill-feathers, as those, for instance, forming the tails of the Woodpecker tribe. And the

reason would be evident to any person who watched a Woodpecker on the stem of a tree feeding. Its food consists of grubs, usually concealed in the wood. In order to get them, he must therefore remain fixed on the bark, and make a hole with his beak, a tedious, if not an impracticable operation, were it not for the wiry stiffness of the tail-feathers, which press against the tree, and act like an additional limb. The tail, however, has another use, applicable more or less to all birds; it is to them, what a rudder is to a boat, and in many cases acts like a third wing. If we look at a Hawk hovering in the air, when he remains in one spot, we shall see that the tail is spread out like a fan, and is in a constant state of quivering motion, balancing the bird, while the wings are keeping it afloat.

It is clear, that if water could soak into the soft feathery covering of a bird, every shower of rain would be the death of thousands, inasmuch as it would increase their weight considerably, and at the same time, by destroying the fine elastic nature of the feathers, entirely disable them from flying, and they must remain in a helpless state upon the ground, either to perish from hunger, or become a prey to men or animals, who would catch them without trouble. But against such a possibility they are guarded by an abundant oily covering, which is constantly renewed; so that the rain, instead of sinking in, runs off, without remaining an instant; and we all know that if we take up a duck, or any swimming bird, we shall find, though it might have been diving just before, that it is perfectly dry and free from all damp. *But this principle of life, if it may be so called, in a*

feather, ceases with the life of the bird; for if we were to throw a dead duck into the water, we should soon find that its coat had lost all power of resisting water, and become a spongy mass of moisture. But besides this, some birds, certain Eagles, Hawks, Owls, and Herons, for instance, are furnished with a very fine dust or powder, which is supposed to be of use in preserving their plumage, though in what way is not at present exactly known.

The growth of feathers, in young birds, in hot and favourable weather is very remarkable. It has been ascertained, by attending to nestlings, that in eight days after their appearing from the egg in a helpless naked state, they have acquired a full coating of feathers, and are able to make some use of their wings.

That feathers are essential to a bird, in its wild and natural state, there can be no doubt; but they are not, it would seem, in all cases absolutely necessary, for a featherless naked Canary-bird was once actually reared, and continued living in good health for upwards of three years. In this case, the featherless state of the bird was accidental; but the fact of a bird's being able to exist without this, its natural clothing, is proved by a most cruel and barbarous custom, which cannot be too strongly reprobated, practised in some parts of England, where extensive flocks of Geese are bred and reared mainly for the value of their feathers. The season of sheep-shearing does not return more regularly than that of Geese-plucking. It is chiefly performed by women; and of course the torture of the poor bird is greater in proportion to the want of skilfulness in the operator,

those new to the employment often tearing and lacerating the skin in such a manner as to occasion the bird's death. But even when performed with the utmost expertness, the poor birds pine for a considerable time afterwards, losing their flesh and appetite; their eyes become dull, and they betray symptoms of weariness and weakness. In some birds this growth of feathers is always going on; and they may be said to be in a perpetual moult; while in others again, and those chiefly water-birds, the process of moulting or changing plumage occurs only twice in the year, in autumn and in spring; and here again we shall find that Creative Wisdom is at work in acting for the best.

That there is a great difference in the summer and winter plumage of many birds, is known to almost every body; but it requires a closer examination, to see that much of this difference consists in a great increase of warmth, to meet the severity of the latter season, which is thus produced. In the autumnal moult, when the summer feathers fall off, the new feathers, which take their place, will be found to be fringed. This fringe is generally of the same texture, though almost always of a warmer and more downy character, and often of a different colour, which will account for the variety of tints often observed in birds at these different seasons of the year. As the spring advances these little fringes break off, and leave the edge of the feather sharp and defined, but of course shorter; in this very simple manner is the bird divested of a quantity of winter clothing, when the weather is warmer, and a *superfluity* of apparel no longer required. In

the case of two species of Partridges, called the Wood and Rock Partridge of North America, which, in winter, burrow underneath the snow, a still warmer covering is provided, the growth of feathers being actually doubled; so that they have nearly twice as warm a coat, when they most require it, as they had during summer, when it was unnecessary.

CHAPTER V.

FLIGHT.—MUSCULAR POWER OF WINGS—PECULIARITY OF, IN DIFFERENT BIRDS.—ADAPTED TO VARIOUS HABITS.—RAPIDITY OF MOTION AND RATE OF, HOW CALCULATED.—LONG CONTINUANCE OF FLIGHT ACCOUNTED FOR.—MIGRATION, CAUSES OF.—TENDENCY OF MOST BIRDS TO WANDER AT PARTICULAR TIMES.—WHY SELDOM SEEN IN THE ACT OF MIGRATING.—INSTINCTIVE POWER OF FINDING THEIR WAY.

HAVING described the light and airy frame-work of birds, intended to pass more or less of their time in the air; and having shown how beautifully, in every particular, an all-wise Creator has fitted them for such a life, we are naturally led to follow them in their flight, and see how they are still further prepared to turn their lightness of form to the greatest advantage; and, in pursuing this inquiry, the more shall we be constrained to acknowledge, that “wondrous are the works of God, and that in wisdom he hath made them all,—giving unto the Stork in the heaven, to know her appointed time, and the Turtle, and the Crane, and the Swallow, to observe the seasons for their coming.” No human ingenuity or skill could ever have devised so perfect an instrument as a bird’s wing, for its intended purpose; so light, and yet so powerful; so spacious, when spread out, and yet so compact, and gathered into so small a compass when not wanted.

We may form some idea of the extraordinary strength of a bird, from knowing that the great *muscle*, which chiefly regulates the movements of its

wing, weighs more than all the other muscles of its body put together, constituting not less than one-sixth part of the weight of the whole body; whereas, those of the human body are not one-hundredth part as large in proportion.

Some birds have to seek their food on the wing, consisting of such very small insects that many hundreds must be swallowed for a meal, and in these we accordingly find a spread and power of wing truly astonishing. We cannot take a better example than our common Swift, the largest of our Swallow tribe, whose well-known scream and rapid flight must be familiar to every one. It has to seek its livelihood solely in the air, on insects so small that we can with difficulty perceive them, even if slowly passing before our eyes. It could not therefore live a day, unless gifted with extraordinary powers of flight; it must not only be able to move rapidly forward in a straight line, but also be able to turn, as quick as thought, to the right or left, upwards or downwards, to catch its minute prey. And such is the case; the bird is so light that it weighs little more than an ounce, and yet the spread of its wings, from tip to tip, is not less than eighteen inches. But extraordinary as these proportions are, in length of wing, compared with weight, in this our British species, they are exceeded in a newly-discovered species in the East Indies, called the Javanese Crested Swallow*, whose uncommon length of wing indicates a speed far beyond that of our Swift. Other birds, again, there are, which require additional powers, not in the air, but under

* *Macropyx longipennis*.

water, their food consisting entirely of the fish they are enabled to catch, by diving after them with greater speed than the fish can swim. Here it is evident, a long wide-spreading wing, like the Swift's, would be very inconvenient; accordingly in birds of this tribe, we find the wings much smaller, and so formed that they can be used as oars or fins, which in one division of the Penguin tribe they very much resemble, the short feathery covering upon them having much the appearance of scales. Of the true Penguins we have none in this country, but we have, however, many species even in England, which live on fish, having wings, if not so much like fins as those of the Penguins, at least so very small, comparatively speaking, that we may refer to them, as illustrations of the subject before us,—we mean the Divers or Grebes,—one of the most beautiful of which, and at the same time the most common, called the crested, or eared, or tippet Grebe, from a feathery ornament like a tippet and ears, weighs two pounds



HEAD OF THE CRESTED GREBE.

and a half, or nearly forty times the weight of a Swift, and yet its spread of wing is only thirty inches, being six inches less than twice the spread

of the Swift's wing. Sometimes, by carefully watching these birds in clear water, opportunities occur of observing their progress beneath the surface, when they may be seen flapping with their short wings, as if flying, thus acquiring a much greater speed than they could by the use of their webbed feet alone.

There is one bird, however, the Water Crow (*Turdus cinctus*), in size, shape, and wings very similar to the Blackbird, which also dives; but as it does not pursue fish, living on spawn or such sort of food, as may be collected without effort, the diver's form of wing is not necessary, and accordingly the only use of its wing, under water, is by flapping or jerking it upwards to prevent its rising; for as, like all other birds, it is much lighter than water, it must of course use some power to keep itself beneath the surface, and this it does by means of its wings. These birds are chiefly found in wild parts of the country, abounding in streams rushing over rocky beds. There they may be seen perched upon a stone on the edge or middle of the water, from whence they wade beyond their depth, and continue their course along the bottom, where they may be observed struggling to preserve a footing, and prevent themselves from rising, by a strange tumbling sort of motion of their bodies, accompanied by quiverings of their wings, which, acting upon the water above, helps to keep them down.

Before we proceed to speak of migration, or that instinct which induces birds to visit and retire from certain countries at particular times of the year, it is necessary to say a little on the speed with which

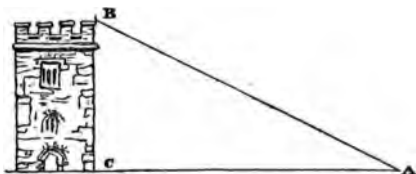
they can pass through the air, and their capacity for continuing on the wing without being fatigued. Few people, we believe, are aware of the very great rapidity of a bird's flight, and many will doubtless be surprised when they are informed that even our slower birds can most of them make their way at the rate of thirty miles an hour, without any extraordinary effort; but that, if pressed, they can considerably exceed that speed. There is an easy way of ascertaining with tolerable accuracy the rate of a bird's flight, which from experience we can recommend as equally amusing and interesting. It is this:—

Suppose any bird, a Partridge for instance, rises in the middle of a stubble, and flies in a straight line over a hedge; all the observer has to do, is to note by the second's hand of a watch (and those who have not second's-hand watches may easily learn, at least sufficiently for practical purposes, to count them), the number of seconds between the moment of the bird's rising and that of its topping the hedge; and then ascertain the distance between the point from whence it rose and the hedge, by stepping and counting the number of paces; when, supposing each pace to be a yard, we have a common Rule of Three sum. Thus, if a Partridge, in three seconds, flies one hundred yards, how many yards will it fly in 3600 seconds, or one hour? or

seconds	yards	seconds
as 3	: 100	:: 3600

to the number of yards required, which will be $\frac{3600 \times 100}{3}$ or 120,000 yards, which will amount to (as there are 1760 yards in a *mile*) about sixty-eight miles an hour.

Again, suppose some Starlings are seen feeding in a field at A, at no great distance from a church tower, BC, in which they are building; or a Crow flies from a certain spot to the top of a tree; we may proceed in the same manner: for the height of the tower or tree will, in most cases, be too inconsiderable to make any material alteration in the result, though, if greater accuracy is required, it may be obtained by the usual mode of measuring triangles. Thus, let BC be the height of the tower, and A the point from whence the Starling rose, flying to the point B. Knowing the height of the tower and the distance AC, we have to calculate AB, which is easily learned, since by the well-known problem of Euclid, $AB^2 = AC^2 + BC^2$; by extracting the square root, we therefore find the exact length of AB.



It was by an application of this simple rule that the flight of an Eagle was ascertained to be little short of one hundred and forty miles an hour. The bird was seen hastening on its way over a valley in the Pyrenees, and the number of seconds was observed, which elapsed between its passing from the summit of one high point, till it reached the brow of a mountain on the other side, the space between

which was known by reference to a good map, in which the distances were well laid down. Such a rapid progress, we are aware, will scarcely be credited; but a celebrated naturalist, in speaking of the large white Fishing Eagle of North America, gives reasons for suspecting that its speed is still greater: he says that, from an immense height, on perceiving their prey, they glide downwards with such rapidity as to cause a mighty rushing sound, not unlike that produced by a violent gust of wind passing amongst the branches of trees; and that the fall of this bird, enormous as it is, can on such occasions be scarcely followed by the eye*. Those who ride over commons or fine turf, may often have witnessed a quickness of flight, probably not much inferior to these Eagles; for they will, even at their fullest speed on the fleetest horse, have seen Swallows skimming in all directions, pursuing the small insects which the horse puts up in his course over the grass, sometimes leisurely keeping at an equal pace, then shooting ahead, and not unfrequently actually flying round the rider in wide circles, with an ease and facility, betraying neither effort nor labour in so doing.

The flight of the common Swallow has been computed at 90 miles, but the Swift has been conjectured to be nearly 180 miles per hour. We can scarcely, indeed, calculate or limit the speed which can be produced by the effort of a wing's vibrations. That a small insect can with ease accomplish forty or fifty miles an hour, and probably much more, we know to be a fact, from our own experience on the Liver-

* Audubon.

pool and Manchester Railroad; for, when rolling along, at the rate of about thirty miles an hour, we saw bees and flies, sometimes hovering round the carriages, sometimes settling, then when disturbed flying to the right or left, in an irregular course, but still keeping up, without the slightest appearance of extra exertion; and often, when tired of continuing with the train, shooting forward, and in an instant leaving us far behind, and this, too, in opposition to a fresh breeze heading them.

Another mode of ascertaining the flight of birds has been by Carrier Pigeons. These are a particular breed, which can be so trained, that when carried to great distances from the place of their usual abode, and turned out, they will find their way back. A short time ago, fifty-six of these birds were brought over from a part of Holland, where they are much attended to, and turned out from London, about half-past four in the morning: they all reached their dove-cots at home by noon; but one favourite Pigeon, called Napoleon, arrived about a quarter after ten o'clock, having performed the distance of 300 miles, at the rate of above fifty miles an hour, supposing he lost not a moment, and proceeded in a straight line; but as they usually wheel about in the air for some time before they start off, and then probably deviate more or less from the direct course, this first bird must have flown, most likely, at a much quicker rate. A curious way of guessing at the speed of a Pigeon's flight has been noticed in America. Birds have been shot, which, on opening them, were found to have fed on coffee-berries, so fresh, that they could not have been in the stomach

above four or five hours; but, as the nearest part of the country known to produce coffee was some hundreds of miles distant, it was calculated that they must have flown at the rate of sixty or seventy miles per hour.

But besides this great speed, many, even of those apparently least calculated for continued flight, can remain on the wing for a much longer time than we are apt to imagine, from seeing them slowly and heavily waddling, as in the case of farm-yard Ducks and Geese, or of a Sparrow, hopping leisurely from bough to bough, or flitting from thence to the house top. Thus the tame domestic Geese, belonging to several Cossack villages, near the river Don, in Russia, leave their homes in March or April, as soon as the ice breaks up, and take flight in a body to the more northerly lakes, the nearest of which must be five or six hundred miles off, where they breed and constantly reside during the summer; but in the beginning of winter, the parent birds return with their young ones, each alighting with its brood at the door to which it belongs. That flights of this sort are not confined to Russia, we may learn from the following instance, corroborating the fact just mentioned. A gentleman walking near Aberdeen, in Scotland, one morning, during a heavy gale which blew from the north-west, was attracted by a loud cackling overhead; from the awkward motion of their wings, he was certain they were not wild Ducks, and they seemed to him to be helped on as much by the wind as their own exertions. He next day heard that the duck-pond of a person in *the neighbourhood* had been deserted the morning

before, about the time he saw them, by thirty Geese, which had all taken to flight, and not been since heard of.

An instance of uncommon flight, though not to the extent of the above, occurred not long ago in Yorkshire. A person had a large flock of Geese, which fed on high ground not visible from the house. They were lessened, as occasion required, to about six; these were fetched home every night, for some weeks; and very frequently, on seeing the house from the top of the hill, they would take wing, and fly homewards, making a circuit of about a mile. On one occasion, they were on the point of alighting on a pond of water, near the next farm-house, instead of a smaller one near home; they soon, however, discovered their mistake, and raised themselves in the air, to nearly as great a height as before, alighting on their own water; and were there long before their driver, notwithstanding that he went mostly in a direct line. These flights were considered as particularly remarkable, because the Geese were, at the time, quite fat and heavy. We have a similar instance of a common tame Duck, in Hertfordshire, which was in the constant habit of taking flights, with the same power, and at the same height, as a Crow, or as if in its wild state. The people of the village were all aware of its singular propensity, asserting that it would often rise and take the circuit of a mile.

As to our smaller species, there is scarcely a part of the wide ocean, in the usual route of navigators, over which some of the little land-birds have not been seen flitting, blown off, in many instances pos-

sibly, from their native shores, by gales of wind, and no doubt often perishing in the waters, but still leaving survivors enough to give evidence of their uncommon strength of wing. Thus our well-known cheerful little bird, the Tomtit (*Parus major*), has been met with in latitude 40° north and longitude 48° west, above 920 miles from land*; but a still more extraordinary instance, both as regards distance from land and situation, is that of a common Titlark (*Alauda pratensis*) having alighted on board a vessel from Liverpool, in latitude $47^{\circ} 4'$ south, longitude $43^{\circ} 19'$ west, in Sept. 1825, at a distance of at least 1300 miles from the nearest main land of South America, and about 900 from the wild and barren island of Georgia. The poor little traveller was taken, and brought back to Liverpool, where it was seen by Dr. Traill, one of our most eminent naturalists. An Owl has been also seen gliding over the midst of the Atlantic Ocean, with as much apparent ease as if it had been seeking for mice amongst its native fields. To the distant voyages of this bird, we can indeed add our own testimony, when sailing in the Mediterranean. At daylight a brown Owl was observed on the main-top-gallant yard, and secured by an active sailor: for three or four days it was detained, but as it appeared to pine, it was again turned adrift. At first it seemed bewildered, but after wheeling round the ship twice or thrice, it steered, direct as an arrow from a bow, for the nearest land, distant about eighty miles.

We cannot, after this, be surprised to hear, that certain seafaring birds are constantly found at a

* Forster's *North America*, vol. i.

thousand miles, or often at greater distances, from land. Three of the most remarkable of these wild wanderers are the Albatross (*Diomedea exulans*), the Tropic-Bird (*Phaeton Phœnicurus*), and the Frigate-Bird (*Tachypetes aquila*). The first of these, the Albatross, the largest of the aquatic tribe, with plumage of the most delicate white, except the back and tops of its wings, which are of a dark gray, floats in the air, borne up by a vast expanse of wing, measuring fourteen feet or even more, from tip to tip. The air and the water, indeed, seem to be far more natural to it than the land, where it is so helpless, owing to its enormous length of wing, which prevents it from rising, unless it can launch itself from a steep precipice or projecting rock, that it is completely at the mercy of those who approach, and one blow on the head generally kills it instantly.

The Tropic-Bird is the very reverse of the heavy gigantic Albatross, and might fairly be called the fairy of the ocean; seen as it is in the genial latitudes of the warmest climates of the globe,—now a stationary speck, elevated as far as the eye can reach, contrasted with the dark blue of the sky, like a spangle in the heavens; then suddenly descending like a falling star, and as suddenly checking its course to hover for awhile over the topmost point of a vessel's masts, and then darting like a meteor with its two long projecting tail-feathers streaming in the air, downwards on a shoal of flying-fish; and then rising gracefully with its prize, again to soar aloft and take its rest above the clouds.

But light and airy as is the Tropic-Bird, what

shall we say to the Frigate-Bird, which surpasses all others in its power of flight, inasmuch as, excepting at the breeding season, it seldom visits the land ; and, still more extraordinary, is never seen to swim or repose upon the waters. Its very structure, indeed, renders its living on either land or water a matter of difficulty ; its wings are so long, that, like the Albatross, unless perched upon the pinnacle of a rock, or projecting point of a branch, it cannot take flight. Neither is it adapted for a life upon the waves ; as its feet are but partially webbed, and in addition to its length of wing, which renders it as difficult to rise from a flat-water surface as from the level ground of the land, its feathers are not of that close and downy texture peculiar to aquatic birds. Whereas, its whole form and internal arrangements are calculated for, it may be almost said, eternal flight. Its length of wing, ten or twelve feet from tip to tip, forked tail, and short legs, (the thighs or tarsi not exceeding an inch in length,) bear a close resemblance to those of our common Swift, of whose wonderful powers of flight we have said so much ; but nature has provided the Frigate-Bird with still more surprising means, for not only floating for a time, but for ever, without fatigue in the regions of air, and even sleep without risk of falling ; we shall endeavour to explain this (at first sight) most improbable capacity, so as to render it no longer a matter of doubt or difficulty, but merely an additional instance of the beautiful arrangement adopted by the providence of God in all his wondrous works.

On examining it, we shall find just beneath the

throat, a large pouch communicating with the lungs, and with the hollow and particularly light bone-work of its skeleton. Suppose, then, that the bird wishes to rest in the air;—in the first place, it avails itself of its large wings, which it is enabled by constant habit to keep expanded, and which are in themselves nearly sufficient to sustain its weight and float its light body in the air. But, in addition to the wing, suppose the bird fills its large pouch with air, and from thence forces it into all its bones and cavities between the flesh and the skin, what will happen? That the heat of its circulation (and it is well known that the heat of a bird's circulation is considerably beyond that of other animals,) will rarefy the internal air; which will, therefore, puff up, not only the pouch, but every cavity, and thus give the bird a surprising additional buoyancy or power of floating, even in the higher regions of the atmosphere. And that this is the case, may be presumed from its habits; for when the lower currents of air are stormy and disagreeable, up goes the Frigate-Bird to a higher and calmer current, where, just as we see the light fleecy clouds in the sky, it remains, suspended with outspread wing, motionless, and at rest, till roused by hunger, it expels the rarefied air, and, emptying its pouch, descends towards the waves; but as it never either dives or swims, on approaching within a few feet, it instantly stops, and changes its direction, so as to skim along and catch the flying-fish with its hawk-like bill or talons, or both together. So averse are they, in fact, to diving, or even touching the water, that, instead of dashing downwards head foremost, like the

Gannet and other diving birds, the Frigate-Bird holds its neck and feet in a horizontal direction ; striking the upper column of air with its wings, then raising and closing them one against the other above its back, it darts on the flying-fish with such skill and certainty, as almost invariably to ensure success.

Most travellers who have visited Constantinople, by the passage of the Dardanelles and the Sea of Marmora, may have noticed a bird not quite so large as a Pigeon, abundant in that neighbourhood, though occasionally seen in other parts of the archipelago, as at Napoli and Vourla, which must have excited their curiosity and surprise. "Every day," says one of the many authors who have noticed it, "they are to be seen in numerous flocks, passing up and down the Bosphorus with great rapidity. When they arrive either at the Black Sea, or Sea of Marmora, they again wheel about, and return up the channel, and this course they continue, without a moment's intermission the whole day. They are never seen to alight either on land or water ; they never for a moment deviate from their course, or slacken their speed ; are never known to search for, or take any food ; and no visible cause can be assigned for the extraordinary and restless instinct by which they are haunted. They fly very near the surface of the water ; and if a boat meets a flock of them, they either rise a few feet over it, or it divides them like a wedge. Their flight is remarkably silent ; and, though so numerous and so close, the whirr of their wings is scarcely ever heard. *They are so abundant in the Sea of Marmora, that*

near twenty flocks have been counted in a passage of a few miles. One reason why they have escaped the close attention of naturalists, is, that no person is permitted to kill any bird upon the Bosphorus without incurring the displeasure of the Turks, who, although very indifferent as to the lives of human beings, are extremely averse to take away the lives of animals*."

Such is the singular account given by an intelligent traveller, to which we are enabled to add a few particulars, partly confirming, and partly contradicting it. The bird is called by the Turks, Armidau, and has been, hitherto, erroneously considered a Kingfisher†, from which species it is however far removed, proving, on examining a beautiful specimen in our possession, to be of that family of birds well known to sailors by the name of Mother Carey's Chickens, and named the Cinereous Petrel (*Procellaria cinerea*‡). Agreeably to the habits of the petrel tribe, this species is rarely seen to settle, though it does sometimes repose for a few moments on the waves, or alight when attracted by food,—an officer of H.M.S. Actæon, having actually caught one which seized his bait hung over the stern, at the extremity of a long line. A couple more were taken in a still more singular manner. Two flocks flying with their usual rapidity, in opposite directions, did not divide, but came in contact, immediately above

* Walsh's *Constantinople*. See also *Sketches in Greece*.

† In Andreossi's work, *Sur le Bosphore*, it is termed Halcyon Voyageur.

‡ It is so closely allied to our Shearwater, that it might easily be mistaken for it.

a boat belonging to the same ship, with such violence, that a brace fell senseless into the boat. An additional reason for the respect in which they are held by the Turks is, that, in consequence, probably, of their restless life, they are supposed to be bodies animated by condemned souls, thus doomed for ever to frequent the scenes of their former existence.

From this superstition, in addition to the prevailing opinion that they are Halcyons or Kingfishers, our classical readers may be reminded of the fable of Ceyx and Halcyone.

. Volabat
Percutiensque levem modò natis aëra pennis,
Stringebat summas ales miserabilis undas.

Hos aliquis senior circum freta lata volantes
Spectat.— OVID, *Metam.*, b. xi., 731.

We cannot quit the subject of the flight of birds, without entering a little more at large upon one so closely connected with it as migration, to which we have already briefly alluded ; for certainly, there is no instinct which seems to act upon them more forcibly, or which, after all, is so deeply involved in mystery.

A careless observer will probably urge that there is no difficulty in accounting for the periodical journeys and voyages of birds. He will say that it is for the sake of food, no longer to be found in the particular spot in which the bird has been dwelling for a few previous weeks or months; or, that it is for the purpose of breeding in more favoured situations, or for some other less ostensible cause. But *none of these* reasons will hold good when closely

examined. Is it for the sake of rearing its young that the Woodcock leaves us early in the spring for the marshes or heaths of Norway, when England and Scotland, even now, might provide spots as solitary and appropriate as the most timid bird could desire? Is it to feed on our comparatively scanty supply of gnats and midges, and other small insects of the air, that a certain number of the Swallow tribes tarry in Britain during the summer season, when Sweden and Norway could provide, in tenfold quantities, insects of this sort for every Swallow, and Martin, and Swift in Europe? When the Redwing and Fieldfare quit this country, it often abounds with that food which they prefer to any other, and at the time of their departure they are in the finest condition. Again, the younger birds, in many cases, do not depart at the same time; and when they do, it has been ascertained that they frequently do not go so far as the old ones. Other birds again, which in some places are constantly to be found, will in others disappear for a certain time, and then return without any discoverable cause. Thus, the Kingfisher, which in the northern part of England may be seen all the year round, on some parts of the southern coasts only makes its appearance in October in considerable numbers, and as regularly departs in the following spring. Few would suspect our constant and lively companions, the Jays and Chaffinches, to be at times travellers, but so it is, there is proof of the fact.

Some gentlemen near Tunstall, in Suffolk, who were out shooting, about five miles from the sea, observed an extraordinary flight of Jays passing in a

single line from seaward towards the interior. The line extended further than the eye could reach, and must have consisted of some thousands ; there could be no doubt of their being Jays, as several were killed as they passed. But the noise of the guns did not occasion the rest to deviate from their line of flight: these birds, to all appearance, were then coming from the continent. We have before noticed the occasional wandering tendency of that steadiest of all birds, the barn-door Goose; in fact, all birds seem either at certain seasons, or under certain circumstances, to be seized with travelling propensities, which they cannot resist. If any of our regularly migratory birds are kept in an aviary or cage, when the usual time arrives for the departure of the rest of their species, these prisoners, without having any communication with their companions, will nevertheless manifest great uneasiness, and often die if detained. We have seen this repeatedly in the Redstart and Flycatcher, which, though carefully supplied with the same food on which they have thriven for weeks before, and been quiet and apparently satisfied with their lot, will, early in September, begin to show great impatience, flying about and striking against the bars of the aviary, and usually dying; after a few days spent in ineffectual endeavours to escape.

Other facts deserve attention, proving that mere climate is by no means, in all cases, the cause of these periodical visits. Thus, some birds will, on the introduction of a new system of cultivation, make their appearance in countries where they were *never seen before*. The Cross-bill (*Loxia curvirostra*)

has followed the apple to England. Glenco, in the Highlands of Scotland, never saw the Partridge till its farmers, of late years, introduced corn into their lands. Nor did Sparrows appear in Siberia, until the Russians had made the vast wastes of those parts of their dominions arable. The Rice Buntings, natives of Cuba, after the planting of rice in the Carolinas, annually quit the island in myriads, and, flying over wide seas, land, to partake of a harvest introduced there from distant India. It is, however, only the female Rice-bird that migrates; for of the numbers visiting Carolina, it is said not a single male is ever found.

The foregoing instances, while they assure us (if assurance was necessary) that birds, at wonted times, change their habitations, still add to, rather than remove, the difficulties as to the real causes. But if of these we must for the present remain in ignorance, we have enough left in the actual facts of migration, to call forth all our wonder, in considering the regularity, order, and discipline, with which these unaccountable journeys are conducted, and the unknown compass placed within the bosoms of these airy travellers, enabling them to go to, and return from, points thousands of miles apart, with as much certainty, as the sailor steers his ship across the wide ocean by his skill in navigation, and that mysterious needle ever pointing to the north. Neither is this instinct confined to birds; it has been observed in Turtles, which cross the ocean from the Bay of Honduras to the Cayman Isles, near Jamaica, a distance of 450 miles, without the aid of chart or compass, and with an accuracy supe-

•

rior to human skill; for it is affirmed, that vessels which have lost their latitude in hazy weather, have steered entirely by the noise of the Turtles in swimming. The object of their voyage, as in the case of birds, is for the purpose of laying their eggs on a spot peculiarly favourable.

It is, indeed, this instinctive power and stimulus which is the real point to excite our astonishment in the migration of birds; for when we take into consideration what has been said of their rapid flight, which would enable an Eagle, in nine days, allowing him sixteen or seventeen hours for repose, to go round the world, there is nothing so very extraordinary in the journey of a Swallow from the shores of England to those of Sierra Leone in Africa; where a person, who resided there for seven years, constantly observed our three species, many of them remaining all the year, but their numbers much diminished from spring to autumn, when they were supposed to be absent spending their summer in Europe.

On looking at the map, it will be seen, that without further peril by sea, than simply crossing the short space of the British Channel and Straits of Gibraltar, (either of which, at their narrowest parts, even a barn-fed Sparrow might easily do in an hour or two,) a bird might make almost a direct course to Sierra Leone, a distance of about 3000 miles, which space a Swallow would, without effort, traverse in three days, including time for roosting at night, and which even the Sparrow could perform at leisure, and without the least fatigue, in less than a fortnight. *The above calculation is made on the supposition*

that the airy travellers keep over the land as much as possible; but, if the straightest course was preferred, they might, by crossing the Bay of Biscay, perform it in less time. And that Swallows do, at least occasionally, take this line, we know, from the very curious fact of one settling on the rigging, and caught on board a vessel bound to the French port of Havre, beneath the wing of which was found a very small slip of paper, on which was written, in French, "The ship *Armide*, Captain Borgnet, going to Martinique, latitude $48^{\circ} 33'$ north, longitude $10^{\circ} 39'$ west." On reference to the map, it will be seen that this point is nearly in a straight line, drawn from the Land's End in England to the western coast of Africa.

It might be supposed, taking place as these journeys do with Swallows, twice in the year, that frequent opportunities would occur of seeing their arrival or departure in flocks, but with the exception of straggling parties of ten or twelve at a time, few have been fortunate enough to see them either come or go; whence it has been inferred that they pursue their course at night. And that this is the case, we can give tolerably good evidence from actual observation. Happening to be at Fecamp, a sea-port at the foot of the highest cliffs in France, immediately opposite the English coast, on the 14th of September, 1833, we had ascended the heights to visit the ruins of an old chapel before sunrise. On looking towards the sea, the first object presenting itself, was a flight of about one hundred Swallows, evidently just making the land, and whirling in a hurried manner over the upper ledge of the precipice. On the supposition

that these birds had quitted the British shores about an hour before dawn, they would naturally have arrived at the point where they were thus seen landing: others probably had come in before, as in the course of the morning we saw, on the roof of a large building in the town, which was exposed to the full force of the sun's rays, an infinitely greater number of Swallows collected together than we had observed throughout the whole of the season.

That this is the practice of many other birds, indeed, is well known, particularly of those which are in the habit of feeding at night. In the fen countries, for instance, which, on account of their ditches and marshes, are favourite haunts for water-birds, in almost every still night, more especially about the time of their usual journeys, either to or from the fens, the whistling sound of thousands of wings, or the shrill notes of call, by which these vast flights are kept together in the darkness of night, may be heard over head.

Birds, too, in their longer flights, no doubt avail themselves of different currents in the air; for we know that often, when the lower stream of air is blowing from the west, another stream, far above, may be blowing from another direction; this may be frequently seen by the motion of the upper clouds moving in contrary directions from those at a lower level. Those most beautiful of all the feathered race, the birds of Paradise, (not only distinguished by their brilliant plumage, but from their being singularly decorated with tufts or trains of light loose fringy feathers, which render it difficult for *them to fly*, excepting against the wind, which

smooths them down,) are chiefly natives of a few islands in the Indian Ocean; and when sailing between these islands, flocks of them are often seen crossing, and always flying against the wind: but as, in that climate, sudden squalls often occur from an opposite quarter, the birds, when caught by them, are observed immediately to dart upwards till they ascend beyond the reach of the gale, and are then seen to pursue their course as before.

One other very remarkable fact connected with these long journeys, undertaken by birds over seas and lands, is, that they are gifted with some secret power, enabling them, not only to find their way to and from the distant countries they visit, but actually guiding them to the very same places from whence they came, and the very same spots for building their nests. This has been proved by marking the claws of Swallows, which were in the habit of building in sheds or outhouses, where they could be easily retaken on their return in the spring, and examined. An instance came under our own observation, of a pair of Swallows returning to build for three years in a small closet in a school-house, entering by a broken pane in the casement, and forming their nest in a corner above the window; and as they were never disturbed, the female would remain sitting, and the male fly in and out in our presence. But though several broods were hatched, the old birds allowed no intruders, and not a single young bird was ever seen to return to the place of its birth after it had once quitted the nest.

Another instance of confidence placed in man by these little birds, when unmolested, occurred at a

nobleman's house in Scotland. A pair of Swallows, a few years ago, built their nest upon the top bar of a clothes-screen in the porter's lodge, which was hung up against the wall; the young ones were hatched, and flew away; the nest was suffered to remain, and upon the first appearance of Swallows the year after, a male bird again entered the apartment, and took a survey of the premises. Having satisfied himself, he went off, but soon returned with a companion, which at first appeared very shy and timid, but in a short time acquired as much assurance as its mate. They both forthwith set about building a new nest on a small ledge, which had been prepared for them, as near as possible to the place where that on the clothes screen had been built, and which had been destroyed, as while it remained, the screen was of course useless to the family.

In this nest three broods were reared as before, notwithstanding the almost constant presence of the porter and his wife, who lived and slept in the room. In the spring of the third year, the male again made his appearance with another mate, evidently much younger than its predecessor. The old nest on the ledge was examined, but for some reason the birds were not satisfied with its situation, and as the clothes screen was hanging in the same situation it had occupied the first year, after a couple of days' hesitation, they constructed a new nest on the favourite screen, and the business of hatching and rearing the young ones went regularly on. The male bird, indeed, seemed to have acquired increased *confidence*, never manifesting alarm at the number

of visitors which so curious a circumstance attracted to the lodge; whereas, the female continued very shy, and was on the alert, and ready to take wing when anybody approached too near. It was remarked in this, as in the preceding case, that no young birds, from the moment of their taking wing, ever returned to the house, either for the purpose of forming nests of their own in so safe and comfortable an asylum, or disputing possession with the old ones for the tenement in which they were born and bred. But, besides these regular migratory birds, others seem to possess a similar instinctive power; for instance, a Robin, which frequented a greenhouse, was caught, and a piece of silk being tied round its leg, it was put into a bag and carried to a distance of some miles, and then turned loose. In three days it was again found in the greenhouse.

One other peculiarity in the periodical visits of birds to their breeding stations, is the punctuality of their arrival. There is seldom the difference of a week, and frequently not that of a day, in the time of the appearance of some particular species. Of course we cannot be accurate in most cases, from not being able to fix on the exact moment of a bird's arrival; but in some instances, circumstances afford us the means of speaking more positively. Thus, on a well-known rocky island called the South Stack, near Holyhead, the lighthouse keepers assured us that the Gulls, which seldom visit the island for two-thirds of the year, arrive on the same night, namely, February 10th, for the purpose of breeding. They are regularly warned of the arrival of their summer guests, about midnight, by a great noise, as it were

a mutual greeting and cheering; and from that moment they remain till their broods are reared, and the business for which they resorted thither entirely at an end.

The light-keeper spoke with pleasure of the arrival of the birds, stating, that they looked to their return as that of so many old acquaintances after a long absence, announcing the spring to be at hand, and the winter to be over and gone.

It has been observed, that the time of departure of certain birds is by no means so exact as that of their arrival; which may be accounted for by a natural disinclination on the part of the old ones to desert the nests of young ones, still requiring their care. But even this most powerful of all instincts, the attachment of a parent to its young, is not in all cases strong enough to conquer the still stronger impulse for migration; for Swallows will actually desert their nests, and leave helpless little ones to perish by hunger, rather than remain long after their companions. A pair of Martins which had deserted their family in the autumn, on returning in the spring, were observed to draw out the dead bodies of three nearly full-fledged nestlings. Another pair acted in a different manner; after vainly endeavouring to drag out the bodies which had most probably formed a dried mass with the wool and feathers in the interior, they entirely closed up the opening of the nest with clay, and leaving them thus entombed, proceeded to build another nursery.

As much interest and amusement may be derived from watching and expecting the arrival and departure of our migratory birds, we annex a list of a

few of the most common, with the earliest and latest dates which have come under our observation.

		Earliest date of appear- ance.	Latest date of depar- ture.
Sand Martin,	<i>Hirundo riparia</i> ,	March 27.	Sept. 21.
Chimney Swallow,	<i>Hirundo rustica</i> ,	April 11.	Oct. 20.
Martin,	<i>Hirundo urbica</i> ,	March 30.	Oct. 20.
Swift,	<i>Hirundo apus</i> ,	April 27.	Sept. 15.
Redstart,	<i>Motacilla phœnicurus</i> ,	April 6.	Sept. 5.
Whitethroat,	<i>Motacilla sylvia</i> ,	April 6.	Sept. 8.
Cuckoo,	<i>Cuculus canorus</i> ,	April 10.	June 30.
Redwing,	<i>Turdus iliacus</i> ,	Sept. 26.	April 3.
Fieldfare,	<i>Turdus pilaris</i> ,	Sept. 29.	May 1.
Woodcock,	<i>Scolopax rusticola</i> ,	Oct. 15.	April 2.

Having thus noticed, as extensively as our limits would allow, some of the most prominent external as well as internal peculiarities of birds, we shall now proceed to the consideration of the various species in detail, following pretty nearly the arrangement already given in the Tables of Classification, and inserting additional observations and anecdotes, to illustrate those subjects on which we have already touched.

CHAPTER VI.

EAGLE AND HAWK TRIBE.—WILD EAGLE; TAMED—
 MUSCULAR POWERS OF—CARRY OFF CHILDREN,
 LAMBS, ETC.—SOMETIMES KILLED ON THE WING BY
 WEASELS.—FATTLE BETWEEN CAT AND EAGLE.—
 HOW CAUGHT WHEN FISHING.—VORACITY OF.—
 NESTS.—SINGULAR MODE OF CAPTURING THEIR
 PREY.—BIRD OF WASHINGTON.—EAGLE TRAPS.—
 FEATHERS OF PRIZED.

TABLE II. ORDER I.—RAPACIOUS BIRDS.

EAGLES AND HAWKS.

WE have classed Eagles and Hawks together, for though not exactly similar in their form and habits of life, there is still a great resemblance: they are for the most part wild, savage birds, and may be compared to the Lions, Tigers, and all that family of four-footed animals, preying upon others, and tearing them to pieces, for their food.

The Eagle stands first and foremost amongst them, for though one or two of the Vulture tribe are a little larger, none can compare with the well-named King of birds. Those who have only seen an Eagle in confinement, can form little idea of what he is, in his natural state, amongst the rocks and mountains, in which he takes up his abode—a situation in which we were once fortunate enough to be very near one of these noble birds. In climbing some high precipices in the volcanic district of Auvergne in France, near a great waterfall, which dashed downwards with a thundering noise; in the midst of the loud roar of *waters*, a short shrill cry met our ear, coming, as it

were, from the clouds. On looking in the direction from whence it came, we soon perceived a small dark speck moving steadily on towards us. It was a Golden Eagle, evidently coming from the plain countries below; on drawing nearer we could see that his wings scarcely ever moved; he seemed to float, or sail in mid-air, rather than fly; though now and then, indeed, they slowly flapped, as if to steady him. As he was approaching in a direct line, we hid ourselves behind a rock, and watched his motions through a telescope. When first seen he could not have been at a less distance than a mile, but in less than a minute, he was within gun-shot, and after looking round once or twice, he darted down his legs, slightly quivered, and alighted on a rock, within a few yards. For a moment he gazed about with his sharp bright eyes, as if to assure himself that all was safe; he then, for a few moments more, nestled his head beneath one of his expanded wings, and appeared to plume himself. Having done this, he stretched out his neck, and looked keenly and wistfully towards the quarter of the heavens from whence he came, and uttered a few rapid screams; then stamping with his feet we saw him protrude his long-hooked talons, at the same time snapping his hooked beak, with a sharp jerking noise, like the crack of a whip. There he remained for about ten minutes, manifesting great restlessness, not a single instant quiet; when suddenly he seemed to hear or see something, and immediately rising from the rock on which he stood, launched himself into the air, and floated away as before, uttering the same shrill cry; and looking round we beheld

the cause of his emotion; he had seen his mate approaching. He rose to meet her, and after soaring in a circle a few times, they went away, and were soon invisible to the naked eye.

This was the large Golden Eagle, a species occasionally found in England and Scotland, but more frequently in Ireland; where, notwithstanding its wild and apparently untameable character, one was taken even after it had attained maturity. It soon became domesticated, and firmly attached to the place, where it continued till it died, though perfectly at liberty, it never having been chained, or put under any restraint. Its wings had, indeed, been cut when first brought thither, but they were allowed to grow again, and the noble bird, on recovering the use of them, would repeatedly soar away, and absent itself for a fortnight or three weeks. It became very much attached to those who were in the habit of feeding or caressing it. On its first arrival it had been placed in a garden, situated on a slope overhanging a lake, a house or shed had also been built for its accommodation; but it generally preferred a perch of its own finding out, in the branch of a large apple-tree, which grew in nearly a horizontal position from the stem. Its food was chiefly crows, which were shot for it; sometimes, however, it attempted to procure them for itself, but never successfully, as their agility, in turning short and rapidly, enabled them to elude its superior strength of wing; latterly, therefore, it contented itself with eyeing them wistfully as they flew or perched securely over its head. It was never suspected of committing any havoc among the sheep or

lambs in the adjoining fields; but now and then, when from some accident it had not been regularly supplied with its accustomed food, it would seize upon and kill young pigs. Children, who constantly met it, as it walked about the garden, were never molested; but on one occasion, it attacked its master with some violence, in consequence, as it was supposed, of his having neglected to bring it some bread or other food it was accustomed to receive from his hand. At length, after having lived about ten or twelve years in this way, it was killed by a powerful and ferocious mastiff. Nobody saw the battle, but it must have been long and bravely contested, for the dog, though victorious, was so severely wounded, that it died almost immediately afterwards.

The weight of a large Eagle is about twelve pounds, though some (as the Bird of Washington) weigh fourteen pounds and a half; rather more than an average-sized Goose. But in order to transport this weight with their extraordinary occasional speed of 140 miles or more per hour, which it has been proved these birds can accomplish, there is a prodigious spread of wing, from seven to upwards of ten feet, from tip to tip, in addition to a muscular power almost incredible.

An Eagle has been known to strike and kill its prey with a stroke of its pinions, before it touched them with its claws. Many people have, however, doubted whether they have sufficient strength to carry off children and lambs; and if such belief rested only on one or two instances, it might be reasonably questioned, but so many well-authenticated cases have been mentioned, as having occurred in

places widely distant, that we do not see how the fact can be denied.

Bishop Heber, in his travels in India, passed through a mountainous district, where sad complaints were made of their carrying off infant children; and we remember some years ago, in the Alps, that on a high-pointed pinnacle of inaccessible rock, jutting out from a peak of snow, near the summit of the Jung Frau, one of the highest of the Alpine range of mountains, there might be seen the tattered remains of the clothing of a poor child, who had been carried up by a Læmmergeyer, or Bearded Vulture, from a valley below, in spite of the shouts of some peasants who saw the bird pounce upon its prize. It is called the Bearded Vulture from the tuft of bristles on each cheek, as represented in the annexed figure.



A more fortunate fate awaited a child in the Isle of Skye in Scotland, where a woman having left it in the field for a short time, an Eagle carried it off in its talons across a lake, and there deposited its burden; some people herding sheep perceived it, and hearing the infant cry, hurried to the spot, and found it uninjured. The name of the child was Niel, but he was afterwards distinguished and called by a *Gaelic* word, signifying Eagle. In Sweden, a deplor-



Contest between a Boy and an Eagle.

able circumstance occurred to the mother of a child; she was working in the folds, and had laid her infant on the ground, at a little distance; soon after, an Eagle darted down and carried it off. For a considerable time the wretched woman heard the poor child screaming in the air; but there was no help. She saw it no more; in a little time she lost her reason, and is, we believe, still living, confined in the lunatic asylum of the town near which it happened.

On Tirst Holm, one of the Ferroe Islands, situated between the north of Scotland and Iceland, a similar fact occurred: an Eagle caught up an infant lying at a little distance from its mother, and carried it to its nest, situated on a point of a high rock, so steep, that the boldest bird-catchers had never ventured to attempt to climb it; the mother, however, ascended, and reached the nest, but alas! too late: the child was dead, and its eyes torn out. But the most striking story we have met with, is the brave behaviour of a little boy in America; it occurred in the parish of St. Ambrose, near New York. Two boys, the one seven, and the other five years old, were amusing themselves by trying to reap, while their parents were at dinner. A large Eagle soon came sailing over them, and with a sudden swoop attempted to seize the eldest, but luckily missed him. The bird not at all dismayed, alighted at a short distance, and in a few moments repeated his attempt. The bold little fellow, however, gallantly defended himself with the sickle, which he fortunately held in his hand, and when the bird rushed upon him, resolutely struck at it. The sickle entered under the left wing, and the blow having been given

strongly, went through the ribs, and piercing the liver proved fatal. On opening the bird's stomach, it was found entirely empty, which may explain in some degree the cause of so unusual an attack. The brave little boy did not receive a scratch, though there can be little doubt, that had the bird not been weakened by hunger, a blow or two from its sharp strong beak would have penetrated through the skull into the brain, and caused instant death.

Eagles of this particular sort are very common in that part of the country, and are often known to carry off a Turkey, or even a Goose, but this was the first instance of their attacking children, though in New South Wales, a celebrated navigator, Captain Flinders, met with something of the same sort. He was walking with some of his officers, when a large Eagle, with a fierce aspect, and outspread wing, was seen bounding towards them, but stopping short at about twenty yards off, he flew up into a tree. Soon after, another bird of the same kind discovered himself, and flying above their heads, made a sudden pounce downwards, but checked himself before he actually touched them. Captain Flinders supposed that they took him and his party for Kangaroos, which, when sitting up on their hind-legs, according to their usual habit, are about the height and form of a man. On these animals the Eagles were observed to feed, having been seen watching quietly in the trees till a Kangaroo made its appearance, when down they flew and tore it in pieces in an instant. Probably this was the truth, for the country was very desolate, and as far as they could judge, uninhabited, so that the *Eagles* might never have seen men before.

The well-known crest of the Eagle and Child, borne by the Stanley family, is supposed to have been founded upon a tradition of one of their ancestors, when a child, having been carried off by an Eagle; and a story is told in a very old book on English history, which, whether true or not in all its particulars, proves at least the prevailing belief, that Eagles occasionally flew away with children: indeed, there was an ancient Act of Parliament "anent the slaying of the Erne," that is, concerning the slaying of the Erne, the name of a particular species of Eagle, in which, on account of its being "a terror to farmers, from fowls to children," a reward was granted to the person who should destroy a nest or a bird. The story alluded to from the above-mentioned old book* is as follows: "Alfred, king of the West Saxons, went out one day a hunting, and passing by a certain wood, heard as he supposed the cry of an infant, from the top of a tree, and forthwith diligently inquiring of the huntsmen what that doleful sound could be, commanded one of them to climb the tree; when in the top of it was found an Eagle's nest, and lo! therein, a pretty sweet-faced infant, wrapped up in a purple mantle, and upon each arm a bracelet of gold, a clear sign that he was born of noble parents. Whereupon the king took charge of him, and caused him to be baptized, and because he was found in a nest, he gave him the name of Nestingum, and, in after-time, having nobly educated him, he advanced him to the dignity of an earl."

In all the above instances of carrying away

* *Monast. Ang.*, Vol. I.

children, it does not appear that the Eagles were able to fly with them to any great distance; but in Ireland a large Eagle was seen to alight and take up a lamb, and carry it away in a straight direction towards the high range of the Morne mountains. The men who saw it, pursued, and kept it in view; when at length, having in vain attempted to soar upwards to the summit of one of the highest mountains, it dropt its burden at the edge of a wood, quite unhurt. The distance it had flown was judged to be upwards of two miles.

They frequently attack smaller animals, but often suffer severely in consequence, from the struggles of the prisoners to escape, and several instances have occurred of their being killed by weasels and stoats, which they had incautiously pounced upon. One was related by the gamekeeper of a Scotch nobleman, who, when out on the moors, observed an Eagle rise from the ground with something it had seized as its prey. For a time, it flew away steadily, when suddenly it became evidently much agitated, and after irregularly fluttering for a short time, spired upwards in a straight line to a vast height, and then ceasing to flap its wings, fell headlong to the ground. Struck with so unaccountable an occurrence, the keeper made what haste he could to the spot, and found the Eagle quite dead, and a wounded stoat struggling by its side. On examining the body of the Eagle he soon discovered the cause of its fall. The stoat, when in the air, had contrived, according to its usual custom in attacking rabbits, hares, rats, and other small animals, to open *an artery or vein*, and kept firm hold of the wound *it had inflicted*.

Another such case occurred to a gentleman in America ; he, like the gamekeeper, saw an Eagle seize its prey and fly off, and soon afterwards rise spirally to an immense height till nearly out of sight, and then fall to the earth like a stone. As he approached, he saw a weasel running away from the body, and on further examination found, that the little animal had got under the Eagle's wing and sucked the blood, until the bird fell from exhaustion. Another case is on record, of one of these birds attacking a cat, when a battle actually took place in the air, and lasted some minutes. The cat, aware, it may be supposed, of her danger, clung with her claws to the Eagle, and prevented him from letting her drop. At length, tired of struggling, and impeded by the clinging of the cat, he descended to the earth, where the fight still continued ; and, in the end, some lookers on captured both the combatants. A cat, however, if once within the fair grasp of an Eagle on firm ground has but a poor chance. One, tempted probably by some pieces of raw meat, was seen to make its way through the lattice-work of a large hut in which a fine Golden Eagle had been long kept. In an instant, the bird was observed to pounce from his perch and seize poor puss so rudely and suddenly with his claw, that, notwithstanding the vivacious nature of the cat species, she was killed in a moment, without an appearance of struggling, or even quivering of her limbs. The entire claw seemed to have been plunged in a moment into the tenderest part of her body. Having secured his victim beyond power of escape, he remounted his perch to pause and look about him, and then, again

descending, proceeded to tear the flesh from the bones, and devour the carcass at leisure.

But, besides warm-blooded animals and birds, most, if not all the Eagle tribe, will readily feed on fish; some sorts, indeed, prefer them, and live in the neighbourhood of large lakes on the sea-shore.



THE SEA-EAGLE.

Some of these birds are gifted with such extraordinary clearness of sight, that from a great height

in the air, they will distinguish fish swimming near the surface, and shooting down with the speed and straightness of an arrow's course, will plunge into the water and seize them with their talons. Often, however, they have no reason to boast of their success, for when carrying off their prize, a larger Eagle, generally on the look out, gives chase, and forces them to drop the fish, which the other catches before it reaches the water. This larger bird, however, is himself sometimes made prisoner by the singular mode he practises of providing for his meals: the following is not the only instance with which we are acquainted, but as it is sanctioned by the authority of a respectable Scotch clergyman, we give it at full length, in preference to others we have met with. The anecdote is told of the Erne, or white-headed Eagle. A halibut, a large flat-fish, resembling a turbot, reposing on or near the surface of the water, was perceived by an Erne, which immediately pounced down and struck his talons into the fish with all his force. Should the halibut be too strong, the Eagle it is said is sometimes, but rarely, drowned in the struggle. In this case, however, as more frequently happens, he overcame the fish; on which he remained as if floating on a raft, and then spreading out his wide wings, he made use of them as sails, and was driven by the wind towards the shore. On landing, their first object is to disengage their claws by eating the flesh in which they are buried, but before the Erne of which we are speaking could effect this, some lookers on rushed in and took him alive.

The Vulture, too, floats on a prey of a very diffe-

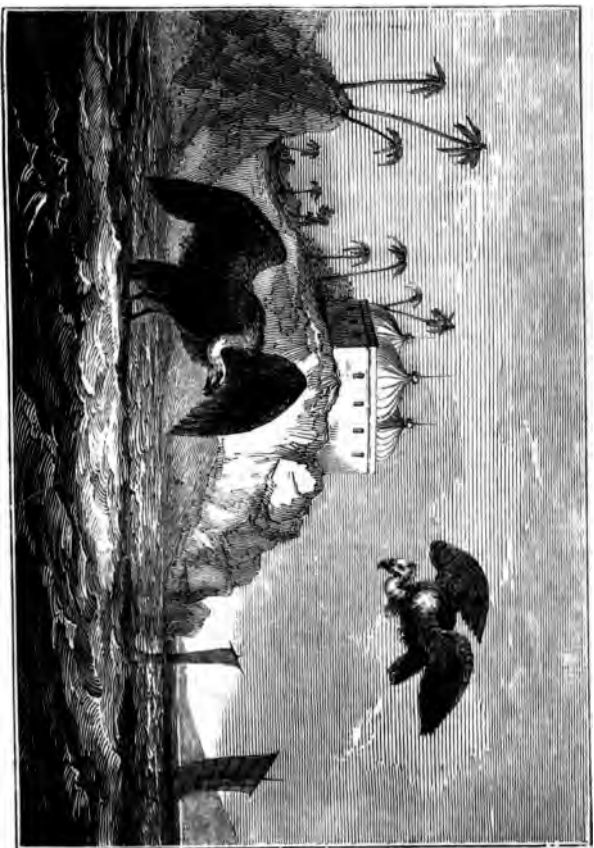
rent description. In the rivers of the East, says a traveller*, one is constantly shocked with the sight of a floating corpse, with a Vulture perched upon it, and expanding its wings to cause it to land, that it may devour its horrid meal in leisure.

From what has been said, it will be readily believed that they are most voracious in their appetites. These large fish-eaters have been known to consume a bucket-full a day; and, as if aware at the same time of the uncertainty of always ensuring a supply, particularly when they have, in addition to their own wants, their young to provide for, they are in the habit of collecting an overabundance on the high rocks where their nests are situated, so as to have an ample stock in hand. And so well aware are the North American Indians of these stores, that an Eagle's nest is familiarly called an Indian's larder; from which the wild hunters can readily supply themselves, at least during the breeding and rearing season, from May to September, with a plentiful store of hares, ducks, and geese, besides fish†.

In England, though large Eagles are now very rare, naturalists have met with similar instances. Mr. Willoughby, an excellent authority, mentions a nest which he saw in the woodlands, near the river Derwent, in the Peak of Derbyshire, about 150 years ago; he described it as about two yards square, formed of great sticks, resting one end on the ledge of a rock, and the other on two birch-trees, upon which was a layer of rushes, and over them a layer

* *Transatlantic Sketches*, Vol. II.

† *Hearne's Journey*.



Tuitture floating on a Court

of heath, and upon the heath rushes again, upon which lay one young one, and an addle egg, and by them a lamb and a hare, and three heath-poult.

But the most particular and curious account of one of these Eagle nest-larders, is related by a gentleman who was visiting at a friend's house in Scotland, near which he went to see a nest, which, for several summers, two Eagles had occupied; it was upon a rock, or a hill. There was a stone within a few yards of it, about six feet long, and nearly as broad, and upon this stone almost constantly, but always when they had young, the gentleman and his servants found a number of grouse, partridges, hares, rabbits, ducks, snipes, ptarmigans, rats, mice, &c., and sometimes kids, fawns, and lambs. When the young Eagles were able to hop the length of this stone, to which there was a narrow road hanging over a dreadful precipice, the Eagles, he learned, often brought hares and rabbits alive, and placing them before their young, taught them to kill, and tear them to pieces, as a cat brings live mice to her kittens, and teaches them to kill them. Sometimes, it seems, hares, rabbits, rats, &c., not being sufficiently weakened by wounds, got off from the young ones, while they were amusing themselves with them; and one day a rabbit escaped into a hole, where the old Eagle could not find it. The parent bird, another day, brought to her young ones the cub of a fox, which, after it had fought well, and desperately bitten the young ones, attempted to make its escape up the hill, and would, in all probability, have accomplished it, had not the shepherd, who was watching the motion of the Eagles, with a view to shoot them,

which they do with bullets (Swan-shot not being able to penetrate their feathers), prevented it.

As the Eagles kept what might be called such an excellent store-house, whenever visitors came unexpectedly, the owner said that he was in the frequent habit of sending his servants, to see what his neighbours the birds had to spare; and that they scarcely ever returned without some dainty dishes for his table, game of all kinds being rather the better than the worse for being kept a certain time. When the gentleman or his servants carried off things from the shelf or table near the nest, (for it was a work of great hazard to approach the nest itself,) the Eagles lost no time in bringing another supply; but when they did not take them away, the old ones loitered about, and were very inactive, amusing themselves with their young, till the stock of food had nearly come to an end.

While the hen Eagle was hatching, the table or shelf on the rock was generally kept well furnished for her use; and when she was in that state, or the Eaglets very young, the male-bird generally tore a wing from the fowls for her, or a leg from the animals captured. These Eagles, as is generally the case with birds that are not gregarious, that is, which do not live together, or assemble in flocks, were faithful to each other, and would not permit even their young after they had grown up to build a nest, or live near them, but drove them off to a considerable distance. This gentleman did not learn whether these Eagles were in the habit of sparing lambs, kids, &c., in their own immediate neighbourhood, which it has *been said* they do in some places. Thus, in the

Shiant Islands, a cluster of wild and retired rocks, situated amongst the Hebrides, or Western Islands of Scotland, the natives assert that the Eagles, which are, or rather were, very numerous there, particularly in the breeding season, scrupulously abstained from providing their young ones with animals belonging to the island in which they had taken up their abode, invariably transporting them from neighbouring islands, often some miles distant. Their mode of catching the mountain deer, was by pouncing down and fixing their talons between the poor animal's horns, flapping at the same time with their powerful wings, which so terrified the deer, that they lost all command over themselves, and setting off at full speed, usually tumbled down some rock, where they were either killed, or so disabled, as to become an easy prey to the Eagles.

Probably this instinctive mode of catching running animals, is common to all large birds of prey, and may have led to the introduction of it in some parts of India, where the natives are very fond of hawking, and train their hunting hawks so well, that one particular Falcon, called the Chirk, is taught to strike an antelope, a beautiful species of small deer, and retard its speed, by fastening on its head, till the greyhounds come up.

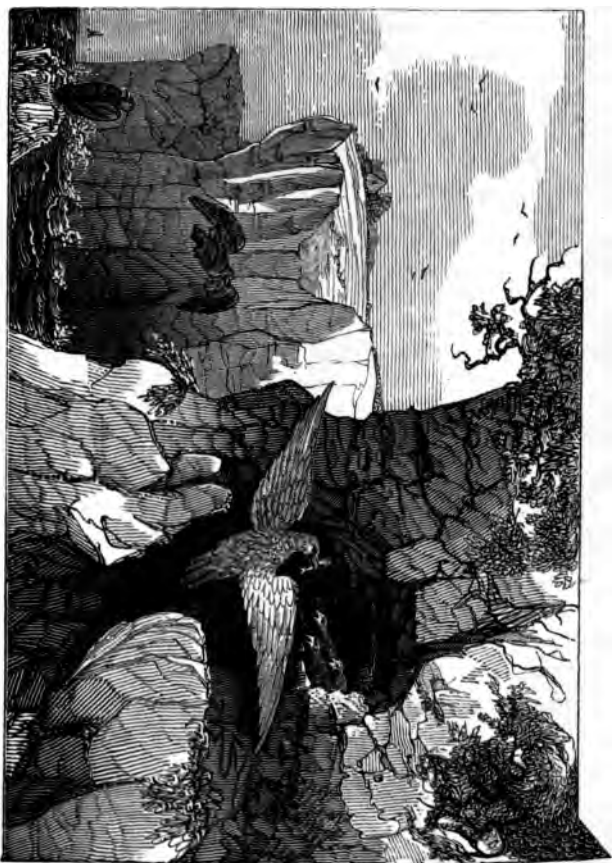
But a still more extraordinary mode, by which the Eagle contrives to kill even oxen, is mentioned as often witnessed in Heligoland, a small and now deserted rocky island in the German Ocean, off the coast of Denmark. Persons resident there state, that it first flies away to the sea, and then plunging into the waves, returns to land, where it rolls itself

on the shore, till its wings are quite covered with sand. It then rises again, and hovers over its victim. When close to it, it shakes its wings, and thus scatters the gravel and sand into the eyes of the ox, while it adds to the fright of the animal by blows with its powerful wings: The blinded animal becomes stupified, and runs about quite raving, and, at length, falls down wholly exhausted; or, like the deer in the Shiant Islands, dashes itself to death by falling over some cliff; when the Eagle mangles undisturbed the fruits of its victory*.

There is a remarkably fine Eagle in North America, called the great Sea Eagle, or Bird of Washington; it is very rare, confining itself usually to lonely situations, occasionally, however, following the hunters, to feed on the entrails of the animals they kill, when excluded by ice from its favourite water-haunts, where in open weather it dives for fish.

A naturalist, who was extremely anxious to meet with one, had long laboured in vain, when one day, as he was engaged in collecting cray-fish near the Ohio, a large river in North America, he chanced to observe on the rocks, which at that place were nearly perpendicular, a quantity of white droppings, which led him to conclude that Owls resorted thither; but, having been assured by a more experienced companion, that they must have fallen from a nest of one of their long-looked-for Birds of Washington, and that the old ones caught fish on the river, he determined to watch for them, and in high expectation seated himself, with his friend, about a hundred yards from the foot of the rock. For two long hours

* *Annals of Philosophy*, Vol. I.



Great Sea-Eagle, or Bird of Washington, feeding its Young.



he waited with great impatience and curiosity, when the approach of the old Eagles was announced by loud hissings, which he soon perceived to be uttered by two young ones crawling from the extremity of their hole, to receive a fine fish presented by the parent, as it held itself to the projecting rock, something after the manner of a House Swallow, its tail spread out, and its wings partly so. That they might not be observed, or frighten the birds away, they crouched down, and kept perfect silence, not whispering a single word. In a few minutes the other parent joined its mate: it also had brought a fish, but being not so bold, or more suspicious, before it ventured to alight, it glanced its quick and piercing eye around, and instantly catching sight of the spectators, dropped the prey, and with a loud shriek communicated its alarm to the other, which, loosening its hold, hovered over their heads, keeping up a sort of growling threatening cry of intimidation.

At the same moment, the young birds, as if aware of some danger, shrunk back, and buried themselves in the chink of the rock; and, as further waiting would have been unavailing, the observers went to the bottom of the precipice, and picked up the fish that had fallen; it proved to be a sort of large perch, weighing about five pounds and a half, the upper part of the head was broken in, and the back much torn by the talons of the Eagle. The sport being over, as they journeyed home, they agreed to return, and endeavour to procure, dead or alive, both the old and young birds.

Accordingly, on the third day following, they assembled with some additional hands, well provided

with guns, and materials for ensuring success, and proceeded to post themselves, some at the foot and some at the top of the rock ; but all in vain. The Eagles had been beforehand, and proved too cunning for them. The young birds had disappeared, and they passed the whole day without seeing or hearing anything of either them or the old ones. It appeared from their observations, that the old ones had actually removed their young to fresh quarters, but as they did not seem sufficiently grown to use their wings, how they could accomplish such a removal, was a mystery not to be solved.

Two years afterwards, the same person was fortunate enough to shoot one dead on the spot, as it sat upon a low tree, attracted, as was supposed, by the scent of some slaughtered hogs. The bird in this case seemed to be perfectly fearless, not only allowing the sportsman to approach within easy gun-shot distance, but looking at him all the time with an undaunted eye.

Having had, since first seeing one of this species, other opportunities of observing their habits, he has given some very interesting details. In its flight it differs from another sort of Eagle for which it is often taken ; when looking after fish in the water below, it makes very wide circles, and when it sees one, it falls gradually in a circuitous, spiral manner, as if with an intention of checking any retreating movement of its prey. When within a few yards, however, it darts down like a shot, and seldom misses its object. As it is so constantly exposed to the water, its feathers are provided with a greater portion of *that oily substance* common to many birds, and

they shine as if covered with a thin coating of clear gum. An anecdote is related by Dr. Richardson*, who accompanied that enterprising traveller, Sir John Franklin, as current on the plains of Saskatchewan in North America, of a half-bred Indian, who was vaunting his prowess before a band of his countrymen, and wishing to impress them with a belief of his supernatural power. In the midst of his harangue, an Eagle was observed suspended as it were in the air directly over his head; upon which, pointing aloft with his dagger, which glistened brightly in the sun, he called upon the royal bird to come down. To his own amazement, no less than to the consternation of the surrounding Indians, the Eagle seemed to obey the charm, for instantly shooting down with the velocity of an arrow, it impaled itself on the point of his weapon.

Fierce and savage as these birds usually are, they, notwithstanding, appear in some instances to lay aside these habits, and manifest a kind and protecting disposition, particularly towards little birds: thus it has been observed, that an African Eagle (*Falco albescens*), though it will suffer no bird of any size to come near its haunt, will nevertheless permit small ones not only to reside near it, but even to perch upon its nest without offering them any violence, and still more, will protect them against the attack of other rapacious birds which might be disposed to devour them.

However cunning and sagacious we have seen them to be in their modes of providing for their own wants, and entrapping other birds and animals, they

* Richardson's *Fauna Americana*.

are occasionally overreached by well-contrived plans, and at times have been made prisoners by animals not surpassing them in size or power. Thus, about ten years ago, as a gentleman's groom in Nottinghamshire, was early one morning exercising his master's horses, a terrier dog which accompanied him put up from a bush a fine Eagle, measuring from tip to tip of his wings, nearly eight feet. It flew slowly over the hedge into a neighbouring field pursued by the dog, who came up with and attacked it before it could fairly rise; a sharp contest took place, during which the dog was severely bitten, but gallantly persevered in maintaining his hold; when at length, with the assistance of the groom, and a person accidentally passing by, the bird was finally secured. It is not improbable that the Eagle had, during the night, been gorging itself with food, after which, birds of prey usually become lazy and dull, and unwilling to fly, unless roused. Aware of this, in Scotland, the people adopt a mode of catching them, which is attended with general success; or at least was in former times, when the country was less inhabited, and Eagles more abundant*.

Four walls are raised to the extent and height of a small house or hut, on some heath or common where Eagles abound; and one opening left at the foot of the wall sufficiently large to admit of the bird's walking in or out. To the outside of this opening, a bit of strong cord is fixed, with a noose formed at one end. When this has been arranged, a piece of carrion is thrown into the enclosure, which the Eagle in his range finds out and devours.

* *Statistical Account*, vol. xxi.

Having eaten voraciously, it becomes stupified, and unwilling or unable to fly at once upwards, and consequently walks slowly and leisurely out at the opening left for it; and the cord with its noose being fitly contrived, and well placed for the purpose, catches hold of and strangles it.

In North America, they are much sought after and prized by the Indians, who are constantly on the look-out for them. Sometimes a hole is dug and slightly covered, and there, in a manner buried, a hunter will patiently watch, day after day, with a bird in his hand, to entice an Eagle within reach. At other times a deer is killed, and a covert made near it, where equal patience is displayed, till a successful shot secures the prize; and a prize indeed he is to these Indians, who hold him in such veneration, from the qualities they esteem above all others amongst their own renowned warriors and chieftains, namely, unwearied perseverance, activity, watchfulness, undaunted courage, and, lastly, patience in suffering privations. There is something, too, in his appearance, which strikes the untutored minds of these savages as denoting superiority over all other birds; his look and movements so dignified, and his rapid and downward flight, attended with a sound which is heard at a considerable distance, and is a signal to all other birds to disappear from his presence; or, when floating magnificently above, on his motionless expanded wings, they listen to the rattling of his pinions as he now and then shakes his quills with a noise which has been compared, by those who have heard it, to the fluttering or rustling of a silken flag in a gale of wind; accordingly, to his

very feathers they attach a respect amounting almost to religious veneration.

There is an instrument, called the Calumet, or pipe of peace, which is used in their most solemn meetings, when they hold councils respecting peace or war; and when offered and accepted by contending parties has the effect of the most solemn treaties and oaths of Christian people. This instrument is, in a part of America called Louisiana, ornamented with the feathers of a particularly beautiful and rare species of White Eagle, called the Conciliating Eagle*. In another part of America, called California, and indeed amongst many other tribes of that vast continent, the Indians, when in their full dress, wear an Eagle's feather fastened to the top of their heads as a mark of nobility. And, singularly enough, a similar custom prevailed, and on occasions of ceremony still prevails, amongst the Highland chiefs of Scotland, handed down from time immemorial. The plume of the Erne, or great Sea Eagle†, being the distinguishing mark of the head of a clan, and even of the kings of Scotland. Many of our readers will doubtless remember the beautiful passage of Sir Walter Scott, in the *Lady of the Lake*, when

Fitz James alone wore cap and *plume*,
And Snowdown's knight was Scotland's king.

These plumes, too, were also valued for another purpose‡, that of garnishing their arrows; the feathers of the Eagle never being injured by rain or water as others are, but remaining always durable, firm, and incorruptible.

* *Falco conciliator*.

† *Falco albicilla*.

‡ See Lord Somers's *Tracts*, vol. iii.

CHAPTER VII.

VULTURES—LOATHSOME FEEDERS—STRENGTH OF.—
 SNAKE-EATER.—MODE OF KILLING SERPENTS.—
 HAWKS—CHARACTER OF.—HAWKING FOR BUSTARDS.
 —VALUE OF.—ICELAND FALCONS MUCH PRIZED.—
 FALCONRY IN FORMER DAYS.—CONTEST WITH
 HERONS.—MODES OF CATCHING.—THE SPARROW-
 HAWK.—ANECDOTES.—THE GLEAD, OR KITE.—
 HERONS.—FOOD OF THE HAWK TRIBE—THEIR DIS-
 POSITION.—THE HAWK SACRED TO THE EGYPTIANS
 AND TURKS.

VULTURES

ARE nearly allied to the Eagles in point of size and some of their habits; they yet differ from them considerably in others: generally speaking, they may be easily distinguished by the head and part of the neck being either quite naked, or covered with a short down. Instead of ranging over hill and valley in pursuit of living game, they confine their search to dead and putrefying carcasses, which they prefer; and justly merit, by the voracity with which they devour the most offensive carrion, the name of Scavengers, in some countries, where they are never destroyed, in consequence of the good they do, by consuming the bodies of animals that might, but for the assistance of the Vultures, breed a pestilence in the hot climates where they most abound. A traveller in Africa, having killed two buffaloes, and directed his party to cut them up piece-meal, and hang the various joints on the branches round their tents, that they might be dried up under the scorching beams of a burning sun, found himself

suddenly surrounded by a flight of these birds, who actually carried off the flesh, notwithstanding the efforts made to drive away or destroy them by shouting, throwing, and even shooting at them. As fast as one dropped, others supplied his place. Another English traveller, who marched for some days with an army in Abyssinia, in a different part of Africa, speaks of their numbers as to be compared to the sand of the sea, extending over the troops like a black cloud; they were also more courageous than some other species, for he once saw one strike an Eagle to the ground, which had accidentally straggled into a host of Vultures, assembled to feed on the dead soon after a battle.

They are, however, sometimes more dainty in their choice of food; as in Egypt, where, during the season when crocodiles and alligators lay their eggs in the sand, these cunning birds will sit, hid in the leaves of the trees, watching the females coming on shore to lay their eggs, which, when laid, they cover carefully with sand, thinking, no doubt, that they are thus safe from all danger, and sure to be hatched in regular course of time, by the warmth of the soil, heated as it is by the sun; but no sooner does she retire, than the concealed birds glide down, and with claws, wings, and beak, tear away the sand, and quickly devour the hidden treasures.

A dead crocodile or alligator is equally acceptable, but as these reptiles are furnished with strong horny or scaly coats, like armour, much too strong to be opened and broken into, by either beaks or claws, the Vultures are often obliged to wait for a long *time, until the hide of the carcass loosens, and affords*

them an opportunity of tearing it off, but they are then as often disappointed of their expected feast, for the flesh, when in a very decayed state, becomes almost fluid, and runs off, to the great disappointment of the hungry birds.

Naturalists are a good deal divided as to the faculty by which these birds are enabled to discover, in a most surprising manner, a dead or dying animal at the distance of even many miles.

In travelling over the immensely wide deserts of Africa, where there is not a blade of grass to tempt a living bird or animal, and no inducement, therefore, for birds of prey to scour those vast wildernesses in search of game, should a camel or other beast of burden drop under its load, in the train of a caravan, in less than half an hour there will be seen, high in the air, a number of the smallest specks, moving slowly round in circles, and gradually growing larger and larger as they descend in spiral windings towards the earth; these are the Vultures, but whence they come, or by what sign, or call, they are collected at a height beyond the reach of the human eye, is still a mystery; though we are much inclined to suspect that they derive their information from an inconceivable keenness of sight, rather than, as some suppose, from an extraordinary sense of smelling, which has been attributed to them. When within a few yards, the spiral motion is changed for a direct line, they then alight on the body, and tearing it in pieces, feed upon it with greediness.

Some idea, indeed, may be formed of their voracity, when we are assured that, at one meal, a Vulture contrived to devour the whole body, bones

and all, of an Albatross, the large sea-bird which we have already described.

The natives of South America avail themselves of the gluttonous greediness of this bird to catch it. A dead carcass of a cow or horse is laid out for a bait, on which they gorge themselves to such a degree that they become quite drowsy and stupid. When in this plight, they are approached by the Indians, who easily throw a noose over them; on finding themselves prisoners they are usually, for a time, sullen and shy; but this is not always the case, as the following story will prove, related by Captain Head, and told to him by one of his attendants, a strong English miner from Cornwall, when exploring the mining districts of South America.

The man, when riding along the plains, saw several Condors, or largest sized Vultures (described in Table iii., p. 11, under the genus "Fleshy Beaked,") of which the annexed figure 1 represents the head; and guessing that they were attracted by some dead animal, rode up, and found a numerous flock round the carcass of a horse. One of the largest was standing with one foot on the ground, and the other in the horse's body, exhibiting a singular force of muscular power, as he lifted the flesh, and tore off great pieces, sometimes shaking his head, and pulling with his beak, or sometimes pushing with his leg.

As the man approached, one of them, which appeared to be gorged, rose up, and flew about fifty yards off, when it alighted, and he rode up to it, and then jumping down, seized the bird by the neck. *The contest was severe, and never probably was such*

a battle seen before, as a Cornish miner and a Condor. The man declared he never had had such a trial of strength in his life, that he put his knee upon the bird's breast, and tried with all his might to twist its neck, but that the Condor, objecting to this, struggled most violently, and he fully expected that several others, which were flying over his head, would take part against him, and assist their companion. At length, however, he succeeded, as he supposed, and carrying off the pinion-quills in triumph, left the bird for dead; but so tenacious are they of life, and so difficult to kill, that another horseman who passed the spot some time after, found it still living and struggling.

Feeding, as Vultures do, on carrion, plunging their beaks into putrid masses of decayed flesh, were they covered with feathers like Eagles and Hawks, about their heads and necks, they would soon become clotted with gore, and be an incumbrance to the bird; accordingly the head and lower part of the neck, in all the tribe, are more or less covered either with down or wattles, or the skin is left almost naked, as in the annexed figure 2.



Figure 1.



Figure 2.



THE GRIFFON, OR FULVOUS VULTURE.

As may be well conceived from the nature of their food, these birds are very disgusting in various ways, much more so than we can form an idea of, from seeing them when kept in clean cages, and fed sparingly, on comparatively fresh and wholesome meat. In their wild and natural state, no one who has once been near them, would willingly approach too closely a second time, as their smell, increased by a greasy sort of perspiration, drawn out by the heat of the sun, is dreadfully offensive; and their appear-

ance very different from the bold fine Eagle, perched on his pinnacle of a rock.

They sit in a sort of moping, slouching manner, with their heads buried within their shoulder-bones, as if torpid, or roosting, many of them together on tall dead pines, or cypress trees, where, in the morning, they often continue for hours, with their wings, measuring from eight to ten feet, from tip to tip, spread open, as some believe, that the air may blow upon and purify their filthy bodies, though more probably, that it may gradually dry up a portion of that greasy moisture, which might, if very abundant, impede their flight,—which is at times prodigious.

There is one exception to this inactive character of Vultures, in a bird which is now classed with them, though more from certain peculiarities in his plumage and beak, than those closer points of resemblance, which would fairly entitle him to be placed in such bad company. This bird is called the Snake-eater (*Vultur serpentarius*), a native of Africa, and of some parts of India; and it is here noticed, on account of its singular manner of destroying serpents, on which it feeds. An eye-witness thus describes it. He was one day riding, when he observed a Snake-eater, while on the wing, make two or three circles, at a little distance from the spot on which he then was, and suddenly descend to the ground. On observing the bird, he found it engaged in examining and watching some object, near the spot where it stood, which it continued to do for some minutes. After that, it moved with considerable apparent caution, to a little distance from the spot where it had

alighted, and then extended one of its wings, which it kept in continual motion. Soon after this, the observer saw a large snake raise its head to a considerable distance from the ground, which seemed to be what the bird was expecting, and waiting for; at the moment the snake reared its head, he instantly struck a sharp blow with the end of his wing, by which the snake was knocked flat on the ground. The bird, however, did not appear confident of having slain his enemy, or gained the victory, but kept its eye fixed on the reptile for a short time, when the snake reviving again, lifted up its head, and the bird, as before, repeated his blow; after this second blow he appeared to gain more confidence; for, almost the moment it was inflicted, he marched boldly up and struck at the snake with his feet; after which, finding it disabled, though not quite dead, he rose almost perpendicularly to a very great height, when he let it drop, and as it fell with great violence to the ground, he seemed satisfied that there was no more danger to be feared, and accordingly he followed it to the earth, and commenced his hardly-earned meal.

Vultures are chiefly natives of the hotter regions of the globe, such as South America, Africa, and other similar warm climates. Some sorts are, however, not uncommon in the southern parts of Europe; and even in England, a few have been seen and killed. In June, 1826, near Bridgewater, in Somersetshire, a strange unknown bird was observed walking on a road, which on being pursued, flew about a mile towards the sea, and alighted on the beach, where it was shot. It had just been gorging *itself with a putrid lamb*, which was most likely the

cause of its allowing itself to be approached within gun-shot. On opening it for the purpose of stuffing, the smell was excessively offensive. Another bird, apparently of the same species, was seen near the place where this was killed, but evaded pursuit. It was of the smallest kind, measuring only, from the tip of the beak to the end of the tail, two feet three inches; and from the tip of one wing to the tip of the other, five feet, six inches and a half: whereas, the great Condor of South America is sometimes found to measure nearly twelve feet from tip to tip of the wings, when spread out.

We next come to the Hawk tribe, which includes a great variety of species, of different sizes from the largest, not much less than an Eagle, to the smallest, not much larger than a Blackbird. They differ, too, very greatly in disposition; some, like the Eagles, being all fire, spirit, and courage, while others are dull and cowardly, and, compared with the first-mentioned, are what Vultures are to Eagles. The chief distinguishing marks between the really-called Falcons or Hawks and true Eagles are, in the form and shape of the beak, and length of the outer feathers in the wing. The beak of an Eagle is comparatively long, terminating in a hook; whereas,



BEAK OF THE EAGLE.

that of the Falcon or Hawk tribe is short, and begins to bend from its base. In an Eagle, the first,



BEAK OF THE FALCON OR HAWK TRIBE.

second, and third feathers of the wing are shorter than the fourth and fifth; whereas, in the common Hawk, the second feather is the longest and the first and third of equal length; but in the true Falcon, the first feather is the longest. There may be some exceptions to the strict letter of this rule, but generally speaking, it is sufficiently correct for practical purposes. Owing to the greater docility of several of the Hawk and Falcon species, they have been made useful to mankind by being trained to catch game of various sorts; and, accordingly, people of all nations, from very early days, have taken pains in rearing and training them. Above 2000 years ago, ancient writers speak of hawking as a common sport. People used to go out into the marshy grounds, and beat amongst the reeds and bushes for small birds which harboured there; and as they flew away, Hawks were let loose in pursuit, and when the game fell to the ground, either through *fright*, or struck by the hawks, the men ran up and *secured them*. Others were so well taught, that

they not only returned to their owners when called, but brought whatever they might have captured in their flight. Some North American Indians understand the art of taming these birds, and are equally fond of the sport; but it has been remarked, that when the hard winters set in, the birds, if not confined, take wing and are never seen again. In China it is a favourite amusement with some of the Mandarins, or great people, to hawk for butterflies and other large insects, with birds trained for that particular sport. In India, the Goshawk, and two other species, are taught to keep hovering over the hunters' heads, and when deer or other game starts up, they dart down, as has been before stated, and fix their claws upon its head, and thus bewilder it, till the pursuers come up.

Near Tripoli, in Africa, on the wide plains, Bustards are very common,—a large bird, once plentiful in some parts of England, though now, in consequence of the increase of population, and enclosure of the waste tracts of land, no longer to be seen; they are larger than Turkeys, and though their wings are so short as to be of little use to them in flying, they enable them to use their long legs with a speed equal to that of a greyhound, and afford excellent sport when pursued by Hawks; and Bustard-coursing is therefore a favourite amusement with persons of rank in that country. Hawking, however, to any extent, is, at the present day, nothing, compared with what it was a few hundred years ago in England, and many parts of Europe, when it was followed with an eagerness and a degree of expense far beyond the cost of fox-hunting.

racing, or any of the field-sports of modern times. Of the value and importance attached to birds of the right breed, (for all Hawks were far from being equally good,) we may form some idea from the attention paid by the king of Denmark, in procuring and preserving certain Falcons which were in the highest estimation, from his island of Iceland, and were then, and still are known by the name of the Iceland Falcon (*Falco Icelandicus*, *Falco Gyrfalco*.) Next to the Eagle, it was reputed the most formidable and active, as well as most prompt and intrepid of our birds of prey.

In the winter, whole flights of these birds come over from Greenland and the Arctic regions, where they probably breed and pass the summer, as Captain Sir Edward Parry saw them frequently in his last voyage. These Icelandic Falcons were always considered the best for sport, lasting ten or twelve years; whereas, those from Norway not above two or three years: they are also superior in size, and gifted with extraordinary qualities. So much were they, indeed, prized, that an ancient Danish law inflicted the punishment of death on any person found guilty of destroying them; and those engaged in taking them were bound under heavy penalties to deliver them to no other person whatever but the king's own falconer; and even so late as 1758, the spirit of the law was not much changed, judging from the following account of a writer on Icelandic history. He tells us that the king of Denmark sends every year a falconer with two attendants. On landing, they repair to a house called the king's *falcon-house*, for the purpose of receiving the birds

caught by persons who are licensed, and are native Icelanders. About midsummer, these catchers bring their birds, on horseback, holding a pole, with another fixed across it, on which ten or twelve sit all capped, that is, with their heads covered with caps or hoods. This pole is held in their hand, and rested on the stirrup. The falconer examines them very carefully, and returning those that are of an inferior sort, sends off the best to Denmark. During the voyage, they are arranged between the decks, tied to poles, two rows of a side; these poles are covered with coarse cloth over a stuffing of straw, and lines are strung from one side to the other, pretty close, that they may have something to catch hold of in case of the ship's rolling. The catchers receive a written testimony of their respective good qualities, by virtue of which, they are paid by the king's receiver-general, about three pounds for the best, which are white; about two pounds for the second best, and from eight to ten shillings for the remainder: latterly the prices have been raised, but in former days, when they received rather more, and money was not so plentiful, this price may be considered as very great. But this price is nothing in comparison with the sums quoted by historians, as given about 200 years ago in England, when a Goshawk, a bird far inferior to these Iceland Hawks, was sold for one hundred marks, or nearly seventy pounds sterling. It is further said, that a certain Sir Thomas Monson, about that period, gave no less than a thousand pounds for a cast of Hawks, consisting of two birds.

In the Orkney islands, a little to the north of

Scotland, where excellent Hawks are bred, there was an act of parliament claiming them "to be reserved to his majesty, with the falconers' salaries, according to ancient custom;" and in some parts, there is still an old custom observed, of claiming a hen from each house, or from a certain number of houses in each parish, as due to the royal falconers. They were said to have been originally taken as food for the king's Hawks*.

No amusement seems to have been followed with so much eagerness as hawking in almost every country in Europe; and from the earliest times, even before William the Conqueror's days, it was the favourite pursuit of the royal families and nobility of England. The training and flying of Hawks formed part of the education of every young man of rank: king Alfred is said to have written a treatise upon the subject; and even ladies followed it as eagerly as the gentlemen. The amusement was occasionally followed on foot, but, generally, particularly on downs and in open countries, it was pursued on horseback. In woods and covers, however, or where horses could not easily follow, the sportsmen were furnished with long stout poles for leaping over ditches, which we learn from a story told of king Henry the Eighth, who, one day, when pursuing his Hawk, at Hitchen, in Hertfordshire, attempted, with the assistance of his pole, to jump over a wide ditch, full of muddy water, but, the pole unfortunately breaking, the king fell, head over ears, into the thick mud, where he might have been suffocated, had not one of his attendants, seeing the

* Barry's Orkney.

accident, leaped into the ditch after his royal master, and pulled him out.

No pains were spared in breaking in the Hawks, as much of their value depended on their docility, derived from good and careful training. The young birds, when taken out of the nest, or sometimes caught by traps, as soon as they began to fly, were put into linen bags, with openings for the head and tail, that they might be brought home without injury. A hood or cap was then placed over its eyes, and, for a day or two, the bird was left to itself. After which, it was placed quietly on the fist, carried up and down the whole day, and gently stroked with a feather. Having been, in some degree, tamed by this treatment, and accustomed to handling, the hood was taken on and off quickly, till it was willing to feed. Meat was then offered, and the hood removed, the falconer making a particular call at the same time, which was invariably used whenever it was fed, but on no other occasion, that it might become acquainted with the voice of its feeder. It was then taught to alight upon the fist, from a perch, being still hood-winked, and receive its food; this was called luring the Hawk. When it was so far tamed as to come readily when called, it was allowed to remain unhooded, and then put to the lure, an artificial bird, made of feathers and leather, thrown up into the air. To this a live pigeon or dead chicken was fastened, part of which, it was permitted to seize and eat; during this part of training it was prevented from escaping by a long string. When quite familiar with the lure, it was taught to fly at live game, chiefly by means of a duck, which was blind-folded

that it might not escape. The natural disposition of the Hawk would induce it to carry off its game, when caught, but this was checked by the skill and kind treatment of the falconer, so that the Hawk, as soon as it had taken the live lure, always returned to its master, knowing that it was sure to be well-fed as a reward.

Having completed its education, when at home, it was placed on a perch without a hood. Straps of leather or silk, called jesses, were put about its legs, for the purpose of holding it, and bells were also attached, so small as not to impede its flight; besides this part of the Hawk's furniture, the person who carried it was provided with thick gloves, to prevent its talons from hurting the hand, and these were often very costly and highly embroidered.

Attached as were our ancestors to this sport, it was by no means confined to England. In Denmark, we have seen from the attention paid to their importation, how highly good Hawks were prized. In France, too, it was as eagerly and expensively pursued, and even the Turks followed the example of Christendom.

A certain Sultan, called Bajazet Ilderim, maintained a corps of 7000 falconers, about the time it was so fashionable in Europe; and to this day, in the plains of Turkey, travellers may meet with parties of falconers, with Hawks upon their wrists, in pursuit of hares, and a particularly large kind of lark, at which their Falcons are trained to fly.

Wild and shy as Hawks are, it will scarcely be credited, that at one time, the common Gledes or *Kites* were numerous in London streets. This hap-

pened in the time of Henry VIII., when it seems that they were attracted by the offal of butchers' and poulterers' stalls; and as, on account of their use in removing so offensive a nuisance, they were not allowed to be killed, they became so fearless as actually to mingle with the passengers, and take their prey in the very midst of the greatest crowds. Few people are, indeed, aware of the numbers of Hawks existing at this day, in London. On and about the dome of St. Paul's, they may be often seen, and within very few years, a pair, for several seasons, built their nest and reared their brood in perfect safety between the golden dragon's wings which formed the weather-cock of Bow Church, in Cheapside. They might be easily distinguished by the thousands who walked below, flying in and out, or circling round the summit of the spire, notwithstanding the constant motion and creaking noise of the weather-cock, as it turned round at every change of wind.

In consequence of the disappearance of wastes and commons, by enclosures and hedges, which rendered it no easy matter to follow the amusement without danger and delay, and also, ever since the introduction of guns, hawking has gradually declined, and may be now said to be nearly at an end; though within late years, some attempts have been made to revive it.

The following account is from an eye-witness of a day's hawking, which occurred in June, 1825, in Norfolk, in the flat fen-country, near a heronry. The party assembled in the afternoon, the wind blowing towards the heronry. There were four couple of Hawks, all females, of the breed known

by the name of the Peregrine Falcon, one of the most esteemed of the British Hawks in the ancient days of falconry. They were carried by a man to the ground, upon an oblong kind of frame, padded with leather, on which the birds perched, and to which they were fastened by a thong of leather. Each bird had a small bell on one leg, and a leather hood, with an oblong piece of scarlet cloth stitched into it over each eye; on the top of this hood was a small plume of various-coloured feathers. The man walked in the centre of the frame, with a strap from each side, over each shoulder; and when he arrived at the spot fixed upon for the sport, he set down the frame upon its legs, and took off all the Falcons and tethered them to the ground in a convenient shady place.

There were four foreigners, probably from Falconsward, a village in North Brabant, much-famed for its Falcons, under whose particular care the birds were placed, each having a bag, somewhat like a woman's pocket, tied to his waist, containing a live pigeon, called a lure, to which was fastened a long string.

After waiting awhile, some herons passed, but at too great a distance; at length, one appeared to be coming within reach, and preparations were made to attack him. Each falconer wore a brown leather glove on his right hand, to prevent the Hawks' talons from scratching the wrist; and there was a small bit of leather attached to the leg of the bird, held by the falconer between the thumb and the finger. Each of the men being now ready, with a *Falcon on his fist*, and the bag with the lure tied to

the waist, and mounted on horseback, proceeded slowly in the direction from whence the Heron was flying; and as soon as the Heron was nearly opposite, though at a very considerable height in the air, they slipped the hoods from off the heads of the Falcons, holding them to the fist by the bit of leather, till they caught sight of the Heron, when the sport commenced in earnest.

For the moment they were let loose, off they went, straight as arrows, towards the Heron, which by this time had gone a considerable distance ahead. As they were dashing away towards it, an unfortunate Crow happened to cross their course, when one of them instantly darted at him, but he contrived to escape by striking into a plantation, where the Falcon followed, but did not take him. The other Falcon soon overtook the Heron, which began to prepare for the threatened attack, by disgorging its ballast, consisting of two or three fishes; while the Hawk, after flying round for a short time in circles, at length, soared above him, and then pouncing downwards, struck him on the back, when they both came tumbling down together from a great height to the ground. The other Falcon having lost some time in chasing the crow, was now flying with all speed, to assist her companion, and was coming up just as the first Falcon and Heron were falling. At this instant, a Rook happened to fly across, when the disappointed Falcon struck at him, and they both fell together, within twenty yards of the other Falcon and Heron. No sooner had they reached the ground, than each of the Falcons began to pull its victim to pieces; but as soon as the falconers

could come up, the lures were thrown out, and the Falcons were allowed to make a meal upon the Pigeons, having been kept fasting for some hours before.

The pigeons were placed for them on the body of the Heron; and after they were satisfied, they were again hooded and put up for the day. The next cast of Hawks consisted of two younger birds; and when let loose at another Heron, they flew up to it very well. But the Heron was an old one, and was supposed to have been attacked before; for the moment he saw his enemies below, he began to soar into the air, and set up a loud croak, and the two young Falcons, not so experienced as the two first older birds, would not attack the Heron, but after flying about for some time left him. Upon this one of the falconers set up a peculiar call, to which the birds were accustomed, when one of them, from a great height in the air, immediately closed his wings, and darting down to the man who called him, was taken in hand. The other Falcon, however, was not so well trained and obedient, but continued to sail about in the air.

At length a Heron approached, and she attacked it, but without success, and soon left it; at last a third Heron crossed, which she attacked, and, after a short struggle, succeeded in bringing to the ground, in the same manner as in the first case. This last Heron had its wing broken, and the Falconer killed it, but the other was taken alive, and afterwards turned out before a single Falcon, which struck it down in a minute. It was said, that if a Heron had *been once taken by a Falcon*, it would never after-

wards show sport by soaring and endeavouring to escape. It was the case with this one, for as soon as it saw its enemy approaching, it appeared to lose all its powers, and merely made a trifling and awkward defence on the ground, where the Falcon would speedily have killed him, if the lure had not been thrown in her way*.

It will be observed that in the above instances, the Hawks either obeyed the call, or were secured by their keepers, on the capture of the game, but this does not always follow, and they are occasionally lost, of which there is a curious proof, in a Hawk having been taken, a few years ago, in the month of August, with bells on its thighs, and a silver ring to its leg, with the owner's name engraved thereon; it flew on board a vessel bound from North Shields to Quebec, in latitude 44° , longitude 25° west, nearly midway between the coasts of Europe and America, and died after being on board twenty days. From the inscription on its silver ring, this bird must probably have escaped from England or Ireland, from the nearest point of which it was, when taken, about 700 miles. Knowing, as we do, the speed of a bird's flight, this distance appears less extraordinary, and might have occupied but a short time in its accomplishment. For instance, the bird might have taken its departure from the nearest land, and with ease, and by no means at its extreme speed, have reached the vessel in six or seven hours, and as it lived for twenty days on board, we have no grounds for believing that it had suffered from excessive fatigue or hunger during its flight.

* *Naturalist's Magazine.*

In the above cases of hawking for Herons, and some other birds, it is observable that the Hawk's object is to disable its prey in the air, and force it to fall to the ground, by the infliction of a severe wound; and it is remarkable that well-trained Hawks, and probably all from natural instinct, aim at the back, and for this curious reason, that the Heron frequently, indeed whenever it can, on finding the Hawk above it, and ready to pounce down, turns itself on its back, with an intention of piercing its assailant through with its long sharp beak; and in ancient pictures of hawking, the Heron is often represented falling with its back downwards, and occasionally with the Hawk transfixed by its beak, in the moment of descent.

All Hawks, however, do not fly at their game with an intention of taking it in the air, while others, so far from avoiding the head, make it their particular point of attack, as the Kestrel (*Falco tinnunculus*), which was invariably observed, by a person who kept one for some time, to crush the head of the animal, given it for food, with its beak, before it began to devour it.

Those who are in the habit of catching Hawks, avail themselves of their knowledge of the different ways in which they provide themselves with food, in order to capture them; a description of a few of these modes may be useful to some of our readers. The manner of catching the celebrated Icelandic Falcons was thus. So anxious were the inhabitants to secure them, that almost every nest was known, and the Falcon-catchers in the neighbourhood watched them *with the greatest care*. When the old ones had reared

their young, and the latter were full grown, two posts were stuck into the ground, at a little distance from each other; to the one was tied a Partridge or a Pigeon, by a small line, two or three yards long, that they might have room to flutter about, and attract, by their motion, the eye of the Falcon; to the leg of the Partridge or Pigeon, they tied another string, in length about a hundred yards, which ran through a hole in the other post, in order to draw the bait to that post, where a net, like a fishing-net, was fixed, with a hoop in a semicircle of six feet in diameter. This being pulled down, it went over and covered the post, for which purpose there was another string fastened to the upper part of the hoop, which went through the first post, to which the bait was tied. These two strings the Falcon-catcher held in his hand, that he might pull the bait when he pleased, and at the proper moment draw the net over his prize. These nets were fixed in the neighbourhood of some nest, or in situations known to be frequented by Falcons. As soon as one of them happened to notice the lure fluttering on the ground, after taking a few sweeps in the air, just over the spot, as if to discover any hidden danger, he pounced down with such violence and certainty, that the bait's head was taken off, as clean as if with a knife. The moment he had thus despatched his supposed prey he generally flew up again, unless very hungry, to be reassured that there was no danger near. Availing himself of this pause, the Falcon-catcher pulled the string and dead bait to the other post, close under the net, which the Falcon observing, on again pouncing down the other string was pulled, when the net fell over

and secured him. He was then taken out with the greatest care, for fear of injuring any of his feathers, particularly those of the wings and tail, and a hood placed on his head, and drawn over his eyes. It is most likely in consequence of the persevering pursuit and capture of them, that this fine breed of birds is becoming exceedingly scarce in Iceland; a late traveller, during a visit of some months, not being fortunate enough to see one, even at a distance.

We may form some opinion of the rapidity with which Hawks fly upon their prey, from the singular manner in which the Lanner, a small Hawk, about the size of a Pigeon, (*Falco lanarius*), is often taken, or as often killed, in the Feroe islands, between Iceland and the north of Scotland, where they are abundant, and is considered as the tyrant of the smaller birds. The Starlings are in such fear of it, that, when pursued, they will take shelter in a church or a house, and often seek refuge in the presence of men. They often escape by what is called a wind-house, a building made for drying meat or fish, the sides of which consist of laths placed at a very small distance from each other, just wide enough, however, to admit the body of a Starling, through which, when pursued, the frightened bird contrives to slip, leaving the lanner, eagerly following close behind, jammed quite fast between them.

There is a Hawk called the Ringtail, or Goshawk, (*Falco palumbarius*), now rare in England, though formerly plentiful, and much valued for hawking, which committed sad devastation amongst Partridges. Its mode of hunting was, to beat a field, and, when a covey was sprung, to fly after them, and observe

where they settled; for as it was not a fast flyer, the Partridges could outstrip it in speed: it then sprung the covey again, and after a few times, the Partridges became so wearied, that the Hawk generally succeeded in securing as many as it pleased. To catch it, a trap or two was set in its regular beat, baited with a small rabbit, or the stuffed skin of one; but a surer mode, particularly in open unenclosed countries, was by preparing what were called bird-bushes, about half a mile from each other. A large stake was driven into the ground, and left standing, about seven feet in height; bushes and boughs were then laid round this post, and kept loosely open, and hollow at the bottom, to the extent of ten or twelve yards round the post, for the Partridges to run into when pursued by the Goshawk, which they usually did after being disturbed two or three times. The Goshawk, finding itself disappointed, and unable to follow them with its long wings, amongst the bushes and briers, after flying round them for some turns, was sure to perch upon the top of the post, as the only resting-place at hand, and was there as sure to be taken by a trap set there for the purpose.

The beautiful, and at the same time very common, little Hawk, called the Kestrel (*F. tinnunculus*), when in search of its prey, may be seen hovering high in the air in the same spot, with its head towards the wind. It has been asserted, by some naturalists, that it lives only upon insects and mice, and will not touch small birds. This, however, is untrue; the Kestrel will not only kill small birds, but others nearly as large as itself, as the following

fact will prove. One of them was observed to seize a young Blackbird, just able to fly, which it was in the act of carrying off in its talons. The old Blackbird gave chase with loud cries, and apparent determination to rescue her young one, when the Kestrel, having allowed her to approach unmolested, in an instant dropped the young bird, and as instantaneously caught up the screaming parent, and carried her clear away. The habit of hawking on the wing has been further proved by its having been seen on summer-evenings, darting amongst a swarm of Cockchafers, seizing one in each claw, and eating them on the wing, and then again darting amongst them.

That birds possibly may, by their swifter flight, often escape, is not unlikely; but exclusive of the above instances, bird-catchers know to their cost, while patiently watching their nets, how often the Kestrel, hovering over the field, will pounce down and destroy their most valuable call-birds; accordingly they contrive a suitable trap for catching him, which rarely fails. A white napkin is spread upon a meadow, and fastened down at the corners with little hooked sticks; on the middle of the napkin a live Sparrow is placed, and kept there by means of a string, three or four inches in length; slender twigs are stuck up round the four sides of the cloth, to prevent the Kestrel from attacking the Sparrow, excepting from above. Two long slender twigs of weeping willow, well covered with bird-lime, are then stuck in the ground, one at each end of the napkin, both forming an arch over the Sparrow, but *at such a distance that it cannot touch them with*

its wings while fluttering, but still so near, as to render it impossible for any Hawk to reach the Sparrow without touching the lime-twigs. The use of the white cloth is merely to attract the attention of the Hawk to the Sparrow at a greater distance. The lime-twigs must be placed so lightly in the ground, that if the Hawk, on finding himself entangled, should struggle, they would still adhere to his feathers, and rise with him into the air if he took flight, for it has been observed, and should be known to bird-catchers, that twigs covered with bird-lime, if long and very slender, will stop the flight of the strongest bird, if fixed so as to pass off with him when touched by his feathers, for they become like a chain binding the wings to the body.

Sparrow-hawks may be caught by similar means; there is, indeed, a great resemblance between these birds in many of their habits, though the latter may be considered as the more shy and untractable of the two. When in pursuit of prey, however, they will not unfrequently evince great boldness. We knew of one which darted into an upper room, where a Goldfinch was suspended in a cage, and it must have remained there some time, and continued its operations with great perseverance, as on the entrance of the lady to whom the poor bird belonged, it was found dead and bleeding at the bottom, and its feathers plentifully scattered about. The Kestrel is, on the other hand, rather more tractable, and will manifest, if not attachment, at least no shyness on the approach of those who feed it, particularly if carefully attended to.

We have noticed several instances of Eagles

carrying off such considerable weights as children, lambs, &c., and we have noticed the death of some of these larger birds by their imprudent attacks upon stoats, and similar small animals; but the power of wing is more decidedly shown by the fact of so small a bird as the Kestrel, weighing only six ounces and a half, and having an expansion of wing of only twenty-seven inches, having been known to dart upon a weasel, an animal its equal, nearly, in size and weight, and actually mount aloft with it. As in the case of the Eagle, it suffered for its temerity, for it had not proceeded far, when both were observed to fall from a considerable height. The weasel ran off unhurt, but the Kestrel was found to have been killed by a bite in the throat.

The following is a strong corroboration of the truth of the story just mentioned, as far as the powers of a Hawk to raise comparatively heavy weights, but is more curious, as exhibiting the courage displayed in one of the most timid animals, in defence of its young. It occurred in Yorkshire. In the spring, a gentleman walking in the fields saw a small Hawk, attempting to fly off with some prey it had just pounced upon, but evidently prevented by the weight of its capture from rising to any height above the ground. It was pursued by a hare, which whenever it came within her reach, attacked it with her paws, and at last succeeded in knocking it down, when it dropped its prey. At this moment the gentleman ran forward, and the Hawk and its pursuer both made their retreat; upon his reaching the spot where the prey had been dropped, he found *it to be a fine leveret, which at once explained the*

cause of the parent hare's gallant attack on the Hawk. It was wounded on the side of the head, and was bleeding, but the gentleman left it in a furrow, hoping that the wound might not prove fatal, and that the mother might find it and reap the reward of her maternal attachment.

It may seem extraordinary that they should presume to meddle with living things of their own size and weight, but it is still more remarkable that they should occasionally wage successful warfare with birds still larger than themselves, as for instance with the Jay. Not long ago, some boys observed a Hawk flying after a Jay, which, on reaching, it immediately attacked, and both fell on a stubble-field, where the contest appeared to be carried on; the boys hastened up, but too late to save the poor Jay, which was at the last gasp; in the agonies of death, however, it had contrived to infix, and entangle its claws so firmly in the Hawk's feathers, that the latter, unable to escape, was carried off by the boys, who brought it home, when on examination it proved to be a Kestrel. The Sparrow-hawk of North America, (*Falco sparverius*), which is more nearly allied to the Kestrel than ours, is often known to attack the Blue Jay of that country. No wonder that Jays have a great dislike to this Hawk, and never fail to annoy it by every means in their power. Sometimes they will follow in order to plague it, at other times, they, by imitating its note, will deceive and draw it from its haunts. In return for all this abuse, the Hawk now and then revenges itself by killing and eating the fattest of its persecutors.

Rapid as is the flight of these birds of prey, and

accustomed as they are to pounce at once on their game, and if disappointed, leave it, and continue their search elsewhere, they will, at times, follow a devoted bird for a length of time with great perseverance. Not long ago, some fishermen belonging to Newhaven, when about five miles from the Bass-rock, off the coast of Scotland, observed a Hawk in close pursuit of a small bird. Apparently exhausted by its numberless sudden turns, spiry circles, and various efforts to escape, it was just on the point of falling into the claws of its pursuer, when the fishermen gave a loud shout, by way of frightening the Hawk, on which the little bird flew down for protection, and perched, quite exhausted, in the midst of them. It proved to be a fine lark. The Hawk approached within a few yards of the boat, and after hovering about for a short time, turned his course towards the shore.

The Glead, or Kite, was a well-known bird, and much oftener seen in former days, even in towns, as we have shown, than at present, but for some reason or other they are getting every year more scarce. Still they may now and then be observed soaring in wide circles over woods, easily distinguished from other birds by their length of wing and forked tails. There is a very curious story told by a gentleman, of a strange manner in which not less than fifteen were caught at the same time: he says he remembers, when a boy, that several of them happened to be roosting on some lofty elm-trees, in winter, when a fog came on, which freezing as it fell, completely glued their feet to the boughs; and they were all taken. The truth of this extraordinary anecdote has been often ques-

tioned by naturalists, who maintain that there is a sufficiency of internal warmth in a bird's foot, to thaw any moisture which might produce the effect above mentioned ; but when we consider the power of sudden frosts, and the comparatively small circulation of blood in a bird's claw, we see no reason to doubt the fact, which is in a great degree confirmed by some other instances of the effect of frost, of an equal, if not more extraordinary nature. Thus, a writer who kept a journal in 1658, in speaking of the winter of that year, alludes to it as the severest ever known in England, and, amongst other things, adds, that Crows were taken with their feet frozen to their prey*. In Scotland, also, during a severe frost, a Heron was found struggling on the ice ; it seems the foot on which it had been standing, had been during the night completely frozen up ; probably when first it settled on the previous evening, the surface was in a fluid state, but a severe frost setting in, the foot was soon incrustated with ice, and the bird fettered to the spot. Again, in one of Captain Sir Edward Parry's Northern Expeditions, the hand of a marine was so dreadfully frost-bitten, that it was found necessary to amputate some of the fingers ; previously to which, by way of restoring circulation gradually to the parts which had not been frost-bitten, the man's hand was dipped in cold water, when to the great surprise of the medical attendants, the water was seen to congeal round the frozen joints, for a considerable length of time after its immersion. In another of his expeditions, it was observed, that the Ravens which were seen on

* EVELYN'S *Memoirs*.

the wing, had a white circle round their neck like a collar, which was at last discovered to be a regular coating of frozen breath, that had thus collected on the feathers, as it escaped from the bird's mouth. But a still more curious instance, and very similar to that of the Kites, occurred near Windsor. One morning a person was employed in a yard adjoining to his house, when his attention was attracted by the growling of his cat, who seemed to be in violent agitation, though confined to the spot on which she stood. On examining the cause of her distress, it appeared that she had been making her breakfast on some offal scraps of meat, which had been thrown there; and the place being wet, and the thermometer at the time being fifteen degrees below freezing, her feet had actually frozen to the ground, and a minute or two elapsed before she could extricate herself from her unpleasant situation. One other instance we have met with, which is stated by the writer to be a positive fact, and as in our view of the case it is by no means unlikely to have occurred, we give it. A peasant, in the mountainous part of the South of France, observing a great number of wild ducks settled on the ice of a small river that was frozen over, fired into the midst of them, and was surprised to find that not one of them took to flight. On going up, he found, that owing to the severity of the frost, they were not only completely fastened to the ice by their feet, but that nearly one half were frozen to death. The above anecdotes will appear less improbable, when we consider how rapidly, under favourable circumstances, even in our comparatively temperate winters, ice is formed, and

how unexpectedly birds or animals unaware of it, might in consequence be imprisoned. It is easy to form ice to a considerable extent, in a few minutes, if water is poured over a level surface so that none shall escape; for instance, over a wide floor or plain, smoothed with Roman cement, flooded to the depth of less than a quarter of an inch. A thin coating of water thus applied, will, even if the thermometer is scarcely lower than the freezing-point, almost immediately become a sheet of ice, and if repeated two or three times, will form a covering, capable of bearing the heaviest weight without giving way. This was actually practised with success on three successive days in November, near Glasgow, for the purpose of preparing a perfectly smooth sheet of water on a roughly frozen pond, for a game, called, in Scotland, a curling match. One eighth of an inch in thickness was found sufficient: it immediately froze, and when the game was over at night, a similar additional coating was poured over it, for fresh use.

We have seen that the common food of the Hawk tribe, consists of animals, or birds, dead or living, with the exception of the Kestrel, which preys with equal satisfaction on beetles; but there is one particular Hawk, called the Honey-buzzard, (*Falco apivorus*,) rather rare at present in England, whose favourite food is bees and wasps, (and not the honey of the former, as has been erroneously supposed from its name,) which it devours greedily, apparently without ever suffering from their stings. There can be no longer any doubt as to the truth, one having been lately shot in the parish of Stoke Nayland, in Suffolk, by a person who saw it first

on the ground near several wasps' nests, and who, on dissecting it, found both in its craw and stomach, a quantity of wasps and their grubs, with a few small beetles. As nobody has had the good fortune to see one of these birds in the act of feeding, it is impossible to ascertain how it makes its way without being injured, into the interior of the wasp's nest, which it must do, in order to get at the grubs which are concealed in the very middle of the combs. The head and throat are surrounded with a clothing of remarkably thick, and rather stiff feathers, which may probably be intended as a protection. From the date, namely, October 12, when this bird was shot, it might be imagined that it attacked those nests only which had been partly destroyed, or deserted by the wasps, which so late in the season were beginning to get feeble ; but this is not correct, as they have been seen just as busy about hives and wasps' nests, in the breeding-season, when these insects are in full strength and vigour. How the Hawk contrives to make his way into the comb is also difficult to understand, though as the legs and claws of this bird were very dirty even to the knee, he most probably uses them as fowls do in dung-hills, to scratch away the soil.

Bold, and apparently savage and cruel as is the disposition of the Hawk tribe, occasional instances are to be found of their manifesting something like kindness and good-will towards birds, where such a disposition might be little expected. Even the Sparrow-hawk, which by some has been considered of so savage and wild a nature, as to render all *means* for taming it hopeless, has, nevertheless, in

the hands of more able or patient guardians proved, not only docile, but amiable in its disposition. About four years ago, a young Sparrow-hawk was procured and brought up by a person who was fond of rearing a particular breed of pigeons, which he greatly prized on account of their rarity. By good management and kindness, he so far overcame the natural disposition of this Hawk, that in time it formed a friendship with the pigeons, and associated with them. At first the pigeons were rather shy of meeting their natural enemy on such an occasion, but they soon became familiarized, and approached without fear. It was curious to observe the playfulness of the Hawk, and his perfect good humour during feeding-time; for he received his portion without any of that ferocity with which birds of prey usually take their food, and merely uttered a cry of lamentation, when disappointed of his morsel. When the feast was over, he would attend the pigeons in their flight round and round the house and gardens, and perch with them on the chimney-top or roof of the house, and this voyage he never failed to take early every morning, when the pigeons took their exercise. At night he retired and roosted with them in the dovecot, and though for some days after his first appearance, he had it all to himself, the pigeons not liking such an intruder, they shortly became good friends, and he was never known even to touch a young one, unfledged, helpless, and tempting as they must have been. He seemed quite unhappy at any separation from them, and when purposely confined in another abode, he constantly uttered most melancholy cries, which were changed

to tones of joy and satisfaction on the appearance of any person with whom he was familiar. The narrator of the above concludes his account, by adding, that he was as playful as a kitten, and as loving as a dove. In Egypt, and Turkey too, a particular species is often domesticated, and may be seen in the farm-yards and gardens, like the Sparrow-hawk just mentioned, in company with pigeons, without showing any inclination to injure them ; and in the course of 1833, a Hawk, which we believe to be of a similar species to that domesticated in Turkey, namely, the Common-buzzard, not only sat upon the eggs of a common barn-door fowl, but instead of devouring them when hatched, according to its natural habit, actually paid them considerable attention, as long as they were allowed to remain in the place where they were hatched, though when removed to another more spacious enclosed situation, with the brood, notwithstanding, she showed no inclination to kill them, she avoided them altogether, and incessantly struggled round the enclosure in hopes of escaping.

Another instance has been noticed near Lichfield. A female of the same species, domesticated and kept in a garden, was set with some eggs of the common poultry, which she hatched at the usual time. When the chickens were freed from the shell, this strange stepmother defended them in the most furious manner, scarcely allowing any person to approach the wooden box in which they were hatched and kept, and to which they retired whenever they chose ; and no dog or cat could venture near, without being stoutly assailed by the Buzzard. *Its fury far surpassed that of a common hen, as*

long as the chickens were young and helpless, but gradually slackened as they grew older; the habits of affection, however, never entirely ceased, for the chickens after they became full-grown fowls, remained with it, and all lived together in the same garden in perfect harmony. A single instance of so extraordinary a deviation from the general habits of birds, might have been received with hesitation, but when corroborated by similar occurrences, on record in other places, its truth scarcely admits of a doubt. We have heard, indeed, a still more extraordinary circumstance, namely, that of an Eagle, at an inn at Uxbridge, which also hatched and brought up several broods of poultry.

The attention of the Turks and Egyptians to certain Hawks, most probably arises from the respect paid to them in ancient times, when the Hawk was held sacred, and when even accidentally to kill one, was punished by a heavy fine; and designedly to deprive it of life was a capital offence, and the culprit suffered death. Various reasons are mentioned by old writers for this veneration. Thus the Eagle was worshipped, as a royal bird, and the favourite of their god Jupiter. The Hawks were worshipped for different reasons; some because they were supposed to destroy scorpions, serpents, and divers dangerous reptiles. Others again were deified, or held sacred, because the priests, or augurs, as they were called, made use of their swift flight in their divinations, or pretended foretellings of events which were to happen. And others, again, looked upon them as sacred, from an ancient tradition, stating, that once upon a time, a book, bound about with a scarlet

thread, was brought to the priests of Thebes, by a Hawk, on which was written all the secret rites and customs of the divine worship of the Egyptians. This extraordinary respect was not only shown to the living birds, but was even more marked, by the funeral attention paid to them when dead. Their bodies were wrapped up in linen folds, steeped in perfumed and precious oils, in order to preserve them; and in this state, they are still frequently found in what are called the mummy-pits of Egypt. A celebrated traveller, Mr. Salt, in his account of Abyssinia, a country bordering on Egypt, speaks of a certain species of Hawk, respecting which the people entertain a singular superstition. When they set out on a journey, if they happen to meet with one of them, they watch it very attentively, and draw good or evil omens, or signs, from its motions; if it sits still, with its breast towards them, till they have passed, they consider it as a fortunate sign, and every thing is expected to go on well during the remainder of their journey; whereas, if its back is turned towards them, it is considered an unfavourable sign, but not sufficiently so as to create serious alarm; but should it happen to fly away hastily on their approach, some of the most superstitious among them will immediately turn back, and go home again, and wait for a more favourable opportunity for undertaking their journey. Mr. Salt was so much struck with the resemblance of this species to the sacred Hawk, so often seen inscribed on the ancient picture-writings, or hieroglyphics, as they are called, of Egypt, that he considered it to *be the same which was formerly held sacred and worshipped.*

CHAPTER VIII.

OWLS.—SUPERSTITIONS RESPECTING.—SHORT EARED.—THE GREAT SNOWY OWL.—WHITE OWL.—MODE OF FEEDING.—ATTACHMENT TO YOUNG.—USED IN BIRD CATCHING.—BURROWING OWL.—DENTIROSTRAL.—NOTCH-BILLED BIRDS.—SHRIKES.—MODE OF FEEDING.—NESTS OF.—USED IN TAKING FALCONS.—PUFF-BACKED SHRIKE.—THRUSH GENUS.—INSTINCTIVE HABITS IN FEEDING.—ANECDOTE.—THRUSH AND YOUNG CUCKOO.—FLY-CATCHERS.—COTINGA.—TANAGERS.—BEAUTY OF.—SERRATIROSTRAL, OR SERRATED BEAKS.—HORN BILLS.—PLENIROSTRAL.—STRONG BILLED.—GRACKLES.—PARADISE BIRDS.

THERE is still another family to be classed amongst the rapacious birds, and forming a natural link in the chain, after Eagles and Falcons, namely, Owls. Every body who has once examined them, must have been struck with the leading points of resemblance. An Owl's bill is almost like a Hawk's, short, hooked, and like its claws, evidently intended for the purpose of seizing and tearing to pieces its favourite food. An Owl's eye too is bright and clear like a Hawk's, but by being larger and more full, is better calculated for the twilight or midnight hours, preferred for prowling abroad in quest of prey. The chief peculiarities of the tribe consist in the advantages afforded them by nature respecting their mode of flight, and sense of seeing and hearing. It is evident, that in order to make a prize of mice, and other small animals, which easily hide themselves in the ground, or under grass or heath, great silence and clear-sightedness are necessary, as well as a very acute sense of hearing. Accordingly, the

wing of an Owl is provided with feathers so remarkably soft and pliant, that in striking the air, they make no resistance or rushing noise; and the bird is, therefore, enabled to steal along silently, in a manner very different from many other birds, such as wild Ducks, the whistling of whose wings may, particularly in a still night, be heard at a great distance; or even as the Plover, whose large soft flapping wings, at first sight, much resemble an Owl's, but which produce a well-known whirring sort of sound, as they wheel round and round in airy circles.

There is something so peculiar in the solemnity and secluded habits of this tribe of birds, that they have in all ages been regarded with a degree of superstitious feeling. Amongst the North American Indians, it is customary for the priest or conjuror, on their most solemn meetings, to cover his head with the snowy skin of the great White Northern Owl; and by the ancients, parts of its body were foolishly supposed to possess a sort of magical power; for instance, they imagined that the heart of a Screech-owl laid upon the breast of a sleeping person, would cause him to divulge secrets; or that, if carried into battle, it would inspire courage and avert danger. In this country, people of former days, always considered it as a bird foreboding mischief, and it was customary to hunt them on Christmas-eve; and even in later times, superstitious persons have thought that the sudden appearance of an Owl during the sickness of any member of the family, was the sure forerunner of death. These conceits, wiser people have long *since thrown aside*, but nevertheless, there is some-

thing so mournful and dismal in its night-shriek, and such a ghostly sort of motion in its silent, gliding movements, when seen glancing through the twilight, or hunting for food in a bright moonlight night, that we can scarcely be surprised at the strange opinions and prejudices of ignorant or superstitious people. Generally speaking, however, a more harmless, we may say, a more useful, race of birds does not exist, since, with the exception of one or two of the larger and rarer species, their food consists entirely of vermin and insects, very prejudicial to our crops, and which, but for these nocturnal hunters, might do serious mischief. A striking instance of their utility occurred some years ago in the neighbourhood of Bridgewater, in Somersetshire, where, during the summer, such incredible numbers of mice overran the country, as to destroy a large portion of vegetation; and their ravages might have extended to an alarming degree, had it not been for a sudden assemblage of Owls, which resorted from all parts to prey upon them. Short-eared Owls (*Strix brachyotos*), to the number of twenty-eight, have been counted in a single field, collected together no doubt, by swarms of mice, which in a favourable season had been bred there. This particular Owl only frequents England between the months of October and April, migrating in the spring to the northern islands of Scotland, where they breed. Its usual and favourite food is, as we have observed, field-mice, but they are bold, powerful birds, and when their young are to be provided for, will chase pigeons, and even larger birds, in the open day, particularly if the weather is gloomy. In

a nest containing only two unfledged young ones, the remains of a grouse and two plovers were found, besides the feet of several others.

During their visits to this country, they are usually to be met with upon wild heaths and commons, concealed in rushy places or long grass: a pair, and sometimes more, possibly the brood of the preceding spring, are usually found frequenting the same haunts. When first disturbed, they seldom fly far, but either hover over the dog, if there be one, or alight, and raising their two odd feathery horns (from whence they are called Eared Owls), they fix their large round eyes intently at the object of their alarm. As a specimen of these Eared Owls, we insert a figure representing the head of the largest of the family, the Long-eared Owl.



EYE AND BILL OF THE OWL.



HEAD OF THE LONG-EARED OWL.

Their note is a singular snapping noise, not issuing from the throat, but occasioned entirely by a smart clicking of the bill; so rapid, indeed, is this motion, that it is with difficulty the opening or shutting of the mandibles can be observed. As it is a bird of courage, the sportsman must be cautious *how he attempts* to handle it, for it has been known

to spring up in the fiercest manner, and offer a most desperate resistance.

There are upwards of sixty species of Owls, widely spread over almost every part of the known world; of these, we may count not fewer than eight, as more or less frequenting this country; of which, by far the most beautiful is the Great Snowy Owl (*Strix nyctea*), which may fairly, from its size and noble appearance, be called the Golden Eagle, or very king of Owls. It is a rare visitant, indeed, in England, chiefly confining itself to the wildest and most desolate regions of the north, where, amidst almost perpetual snows, it passes its solitary life. When in perfection, its plumage is of the most dazzling snowy white, with a few darker spots, chiefly about the head. Its thick feathery coating is most admirably adapted for the countries in which Nature has appointed it to live.

During the three summer-months, in those inhospitable regions, the temperature of the air is little above the freezing-point, and during the remainder of the year, far below it; were it not, therefore, for the mass of thick down and feathers in which its body is shrouded, it must soon perish under the intensity of cold; but as it is, it has nothing to fear; for, with the exception of the tip of its beak, and the extremities of its long black claws, no part is exposed. And again, were it not for its colour, which renders it almost invisible, as it silently skims over the snowy plains, the hares and other animals on which it preys would see its approach, and be prepared for escape.

Of course, the habits of a bird so seldom coming

under human observation, can be but little known; but the few particulars we have been able to collect, completely justify the above remarks. Thus, that its snowy plumage is essential to its means of existence may be gathered from circumstances relating to a couple that were shot in the severe winter of 1823, in Northumberland. They had, for some days before they were killed, been observed in the wild and rocky parts of an open moor, either perched upon the snow, or on some large solitary stone projecting from it, from whence, without attracting notice by any contrasting colour, they could look out for their prey, and be prepared to seize it as it incautiously approached. As the smaller species hunt for mice, so does this search for hares and rabbits, on which it pounces; and in a similar manner, swallows them when possible, whole; a fact ascertained in the case of one shot at and wounded in the island of Balta, which, on being approached, disgorged an entire young rabbit; another when taken, had a Sandpiper, with the whole plumage, in its stomach. As they were often found dead by Captain Sir Edward Parry, who spent so many months in their most frequented neighbourhood, it is concluded that they frequently perish from want of food; indeed, their eagerness to partake of the hunters' fare, and carry off the spoil in his presence, is a proof that they must often be severely pressed by hunger. Sportsmen in the north* assure us that they keep watch on some high tree or lofty rock, and the moment the gun is fired, and the game killed, they descend, and skimming rapidly down, secure the prey before the shooter is able to get near it.

* *Hearne's Travels.*

Our well-known White Owl, is a very different bird in its habits: so far from wandering far from the abodes of man, it is always near or about our dwellings; the constant frequenter of our barns and out-houses, and one of the farmer's best friends; for to it we are indebted for the destruction of the shrew-mice, a species which, but for the good service of our Barn-Owls, might prove a great annoyance to our gardens and fields, since, owing to a peculiar flavour or smell, neither cat nor dog will eat them. On the approach of twilight, they sally forth from their roosting-places, and hunt the meadows and hedge-banks with the regularity of a pointer-dog; every now and then, they may be seen to drop suddenly down, with great rapidity, and unerring aim on their game, which is seized on and swallowed at once, without any attempt to tear it in pieces with its claws. If, however, they have young ones, they carry off the prize in their claws; and here a curious piece of address is practised. It is evident, as long as the mouse is retained by the claw, the old bird cannot avail itself of its feet, in its ascent under the tiles, or approach to their holes; consequently, before it attempts this, it perches on the nearest part of the roof, and there removing the mouse from its claws to its bill, continues its flight to the nest. Some idea may be formed of the number of mice destroyed by a pair of Barn-Owls, when it is known that in the short space of twenty minutes, the old birds carried food to their young twelve times, thus destroying at least nearly forty mice every hour during the time they continue hunting; and as young Owls remain long in the

nest, many hundreds of mice must be destroyed in the course of rearing them.

If taken young, they may be tamed so far as to eat out of the hand, and become, to a certain degree, familiar; but in their wild state even, they seem to be sensible of kindness, and lose much of their shyness, if never disturbed. A gentleman in Yorkshire, Mr. Waterton, who has paid great attention to their habits, gives a very interesting account of their mode of life. He made a sort of dwelling for them, about four feet square, on the ruins of an old gateway, and trained some ivy round about, which soon concealed it. In the stone-work, he fixed a thick oaken stick for them to perch upon. In about a month after every thing was ready, a pair of Barn-Owls came, and established themselves there. This succeeded so well, that he formed some other similar places, all of which were in like manner soon occupied by pairs of Owls. That in the old gateway was so contrived, that he could examine it whenever he pleased; and as they were never injured, the Owls soon grew confident, and betrayed no fear when strangers mounted a ladder to look in. One rather unexpected piece of information was learned from constant inspection, namely, that these birds, unlike others, seem to breed at all seasons, as he found a young brood hatched in September, and another in December; and he adds, that he considers himself as amply repaid for the pains he has taken in protecting and encouraging his Barn-Owls; conceiving that it pays him a hundred-fold by the enormous quantity of mice destroyed throughout the year. Many, *however*, condemn them, on account of the ravages

they commit in pigeon-houses, by carrying off the young ones ; but this seems to be an unfair charge ; their real reason for entering pigeon-houses being rather for the purpose of picking up the vermin that are constantly harbouring there, than injuring the inmates.

Mr. Waterton observes, that when farmers complain that the Barn-Owl destroys the eggs of their Pigeons, "they put the saddle on the wrong horse." It ought, he says, to be put upon the rat ; stating from his own experience, that his increase of Pigeons was inconsiderable till the rats were effectually excluded from the dove-cot, since which time, they have increased abundantly, though the Barn-Owls frequent it, and are encouraged all about it. And he reasons very correctly, by saying, that if they were really enemies, the Pigeons would be in commotion as soon as the Owl began its evening flight, and entered their premises ; but that they heed him not. Whereas, if a Hawk should make its appearance, the whole community of Pigeons would be in confusion and alarm. We have another testimony in favour of the Owls with regard to Pigeons. A person who kept Pigeons, and had often a great number of his young ones destroyed, laid it on a pair of Owls which visited the premises, and accordingly, one moonlight night, he stationed himself, gun-in-hand, close to the dove-house, for the purpose of shooting the Owls. He had not taken his station long, before he saw one of them flying out with a prize in his claws ; he pulled his trigger, and down came the poor bird, but, instead of finding the carcase of a young Pigeon, he found an old rat nearly

dead. Mr. Waterton met with a similar proof. He was one evening sitting under a shed, watching for rats, when he killed a very large one, as it was coming out of its hole, about ten yards distant. He did not immediately go to take it up, hoping to get another shot; when in a short time, a Barn-Owl pounced down, and flew away with it.

But there is another food of which Owls partake, little guessed at we suspect by many, namely, fish. The great Snowy Owl above-mentioned is known to be a regular fishing-bird. Motionless as the rock on which he sits, he waits patiently till a fish passes, when with the rapidity of a shot, he seizes it with his claws; but, although asserted by some naturalists, it had never been quite proved that the common Owls were also fish-catchers; but the fact has been now confirmed by the testimony of more than one credible witness. Some years ago several young Owls had been taken from a nest, and placed in a yew-tree near a gentleman's house. In this situation it was observed that the parent birds repeatedly brought them live fish, such as bull-heads and loaches, which had evidently been taken from a neighbouring brook, in which these species abounded. At subsequent times, bones of the same fish were frequently found lying under the trees on which the young Owls were observed to perch after they had left the nest, and where the old ones were accustomed to feed them. How they caught them was not then known; and the reports of some labourers, employed to watch a fish-pond in the flower-garden, was not believed. This pond contained several gold and silver fish, which were observed to diminish in

number, and it was suspected that the pond had been poached, and other persons were therefore appointed to watch; when, lo! the poachers proved to be Owls, which alighted on the edge of the water, and there waited the approach of the fish: as soon as these came within reach, they were captured and devoured. This testimony has since been corroborated by another witness, who, at twilight in July, happened to be standing on the middle of a bridge, watching an Owl carrying mice to its nest, when suddenly he observed it to drop perpendicularly into the water. At first, he thought it had met with an accident, or had been seized with some sort of fit, but before he could reach the end of the bridge in search of a boat, he saw it rise out of the water with a fish in its claws, and convey it to its nest. It has been conjectured by some, that as fish are attracted by a light or any shining substance, there may be a luminous appearance in the large round and bright eyes of an Owl, like those of a cat, which are known to all for their glaring in the dark, by which the fish are attracted within reach of its beak or claws. How far this conjecture may be true we know not, but it is worthy of consideration, on account of a very singular power possessed by one of the American Bitterns, which has been confirmed by several witnesses whose veracity it would be impossible to doubt. This bird, which lives almost entirely on fish, when in pursuit of prey decoys them within reach by a light from its breast of considerable brilliancy, described by those who have seen it, "as equal to the light of a common torch." Whether it has the power of increasing or diminishing, or

entirely putting out this light, is not known, but its use to it as a fishing-bird is very great, for it not only attracts the fish within reach, but when they are there, enables the Bittern to see them without difficulty.

Owls have been noticed for an extraordinary attachment to their young; whether, however, it exceeds that of other birds or animals may be difficult to say, but they will certainly visit and feed them long after they have been separated from the nest. Some young Owls, which had been so far tamed as to take food from the hand, were observed to lose all their familiarity on being hung out during the night, in consequence of renewed visits from the supposed parent birds, who fed them with as much care and attention as if they had been with them without interruption.

Another instance in point was witnessed by a Swedish gentleman, who resided several years on a farm, near a steep mountain, on the summit of which two Eagle-Owls (*Strix bubo*) had built their nest. One day, in the month of July, a young bird, having quitted the nest, was caught by the servants. This bird was, considering the season of the year, well feathered; but the down appeared here and there between those feathers which had not yet attained their full growth. After it was caught, it was shut up in a large hen coop, when to his surprise, on the following morning, a fine young partridge was found lying dead before the door of the coop. It was immediately concluded that this provision had been brought there by the old Owls, which no doubt had *been making* search in the night-time for their lost

young one. And such was, indeed, the fact; for night after night, for fourteen days, was this same mark of attention repeated. The game which the old ones carried to it consisted chiefly of young partridges, for the most part newly killed, but sometimes a little spoiled. On one occasion, a moor-fowl was brought, so fresh that it was actually warm under the wings; a putrid, stinking lamb was at another time deposited. It was supposed that the spoiled flesh had already been some time in the nest of the old Owls, and that they brought it merely because they had no better provision at the time. The gentleman and his servant watched several nights, in order that they might observe, through a window, when and how this supply was brought; but in vain—for it appeared that the Owls, which are very quick-sighted, had discovered the moment when the window was not watched, as food was found to be placed before the coop on those very nights. In the month of August, the attention on the part of the old birds ceased; but it should be observed that this was the usual period when all birds of prey abandon their young to their own exertions, and usually drive them off to shift for themselves in distant haunts.

It may be readily concluded, from this instance, how much game must be destroyed by a pair of these large Owls, during the time they rear their young. Our Barn-Owl is by many accused of being equally injurious to game, but experienced sportsmen are most of them of opinion, that game is rather preserved than destroyed by them; the great destruction, exclusive of poaching, proceeding from weasels, stoats, rats, &c., which suck the eggs, and in one

night will destroy a whole brood. Now Owls, although they may occasionally kill a bird or two, of which however we have considerable doubts, (for by night young Partridges and Pheasants are in safe keeping under their mothers' wings,) live chiefly on small vermin, as we have seen; and in proportion as the Owls are destroyed, these noxious animals may be expected to increase.

That small birds, generally speaking, have a great dislike to Owls, is clear, from the uproar that takes place if an unfortunate Owl is disturbed in the day-time, and compelled to appear in broad day-light; pursued, as it is sure to be, by a host of them, who persecute it by every means in their power. And we may therefore conclude, that they either take it for their real enemy, the Hawk, or that it does, now and then, when it can, feast upon any of them which may, by accident, fall into its clutches.

Of this antipathy, the bird-catchers in Italy know how to take advantage, it being customary with them to decoy small birds to lime-twigs, by tethering an Owl by the leg with a long string, which is thus kept hopping, and beating the ground without being able to escape. The bird-catcher then hides himself behind a tree, and makes a chirping, which calls the small birds together, and on seeing the Owl, they gradually approach nearer, and finding him unable to resist, become so bold, that they at length come within the line of twigs and are made prisoners themselves.

Though apparently cowardly birds, and never the first to dispute with others of their own size, yet, *when pressed*, they show considerable spirit and

skill in defending themselves. One, which had been slightly wounded in the wing, was, when cured, placed in a large pen with a Sparrow-Hawk, which had been some time confined there, and with whom, it was hoped, a new companion might live on friendly terms; but no sooner were they left to themselves, than the Hawk fell upon the Owl, and a furious battle began. But the Owl, so far from showing fear, defended itself most gallantly. He threw himself on his back, and awaited the charge of his enemy with patience and preparation, and by dint of fighting and scratching, preserved himself from injury. As long as they remained together, these battles were frequently repeated, and further acquaintanceship did not seem likely to ripen into friendship. Whether they would in the end have come to better terms, cannot be known, as, after a time, the Owl's wing having gained strength, it took advantage of a favourable opportunity, and contrived to escape, leaving the Hawk in full possession of their joint prison.

One other species of Owl only shall we notice, which has a very different way of living and lodging from those already alluded to. It is called the Burrowing Owl (*Strix cunicularia*.) It is widely spread over the American continent, both North and South, though only to be met with in particular parts of each, where circumstances combine, to make its residence convenient. It gets its name of Burrowing Owl, from the singular retreat it invariably prefers. Other birds of this family resort to solitary recesses in woods and forests, or ruined buildings, but this delights to dwell in open plains, in com-

pany with animals remarkable for their social disposition.

Lucien Buonaparte, the brother of Napoleon, who for many years lived in North America, and became a celebrated naturalist, thus speaks of it:—"Instead of sailing heavily forth in the obscurity of the evening or morning twilight, and then retreating to its abode, this bird enjoys the broadest glare of the noon-day sun, and flying rapidly along, searches for food or pleasure, during the cheerful light of the day; and then returns to its underground dwelling, which consists of the burrows of the Marmot, or prairie dog, an animal abounding on the vast plains of the western part of the United States. These burrows are called by the natives, Marmot villages, and are so numerous and extensive, that they will sometimes spread over the face of the country for miles together. If disturbed, the Owls, which are usually seated near the burrows, either fly off a little way, and settle again, or descend into the holes, from whence it is no easy matter to dislodge them."

Another traveller, Captain Sir Francis Head, when travelling over some immense plains in South America, called the Pampas, fell in with them in company with the Biscachos, an animal much resembling the above-mentioned prairie dogs, of very singular appearance, nearly as large as badgers, but their heads not unlike a rabbit's, except that they have large bushy whiskers. In the evening they sit outside these holes, looking very serious, as if moralizing, thoughtful, and grave. These holes were guarded in the *day-time*, by two of the above-mentioned little Owls,

who were never an instant away from their post. As strangers gallop by, there the Owls continue to sit, looking at them, first full in the face, and then at each other, moving their old-fashioned heads in a manner which was quite ridiculous, when, as the riders pass close to them, fear gets the better of their dignified looks, and they both run into the Biscachos' holes*.

The next order which offers itself to our notice in the tables of classification, is the Passerine, subdivided into seven tribes, the first of which is the Crenirostral, from two Latin words signifying notch-billed, as they are all more or less indented or notched towards the extremity, as in the annexed figure.



In the preceding order, the same peculiarity indeed exists, but in the crenirostral tribe, the beak is, generally speaking, of a very different character, though in some cases there is a resemblance. In fact, the more we examine the arrangements of nature, in its orders of created beings, whether in animals, birds, fishes, or insects, the more shall we be struck with the beautiful connexion between the several classes, into which they are divided, and

* Head's Rough Notes.

the utter impossibility of drawing up rules which shall, without exceptions, accurately define the marks of distinction. The works of God, in short, whether in the animal, vegetable, or mineral world, may be likened to

The letting down a golden chain from high ; a chain of innumerable uninterrupted links, visible to us only in the intermediate portions, and each attesting the wisdom and power of its great Contriver. Thus, in the subject under our immediate consideration, we find, that from the gigantic Condor, or great Vulture of the Alps, to the small Humming-bird, not exceeding in size an humble-bee, there is a regular scale ; that one class and family slides imperceptibly into another, till the most intelligent naturalist feels himself at a loss to define accurately, where the one ends, and the other begins. Of this we have an example, in the link connecting the Eagle, Hawk, and Owl tribes, with the first of the numerous families which remain for consideration. This link consists of a small but interesting division, called the Shrikes. (Table VII., see page 13.) As many of them live chiefly, if not entirely, on beetles, grasshoppers, &c., they have been considered as the Falcons of the insect world, pursuing and destroying vast numbers of those countless multitudes that swarm in hot climates ; and have also been named Butcher-birds, from a fierceness and cruelty of disposition, which seems to lead them to kill and slay from mere wantonness, together with a singular habit of impaling their victims on thorns or cleft branches, where they are left.

In this savage character they resemble the birds

of prey we have just noticed. In the form of their beak, too, there is a close resemblance, it being short, arched, and furnished with a strong projecting tooth near the tip, which is acute, and very analogous to the true Falcons. But they at the same time differ so essentially in other points, that some modern naturalists have removed them into a distinct class. Their limbs, for example, are very different from the Eagle and Hawk tribe, the toes being slender, and the claws comparatively weak. But although slender, their pressure is nevertheless powerful, and the bite they can inflict with their bill extremely severe, and capable of drawing blood from a man's finger in an instant. The uses of the separate qualities of the claws and bill are seen from the mode in which they seize their prey; if, for instance, it is an insect, they pounce down, secure it with their sharp notched bill, and then press it under their feet to eat it. But when coming down on a bird or a mouse, which they have pursued for some distance, they settle their feet on the head of the object pursued, at the same moment that they strike it with their bill, and in this manner one was seen carried a very considerable distance by a dove, on which it had fastened itself by its beak and feet. They differ again from the Eagles and Falcons, respecting the treatment of their young. The Falcon tribe invariably driving them off to shift for themselves, as soon as they are full grown, and capable of getting their own living. Whereas the Shrikes, although cruel to a degree in their general habits, show a marked attachment, and of long continuance, to their young; and are,

indeed, in all respects, as far as concerns each other, the most amiable birds imaginable. They never drive them off, but live together on the best terms till the following season, when they separate by the instinctive laws of nature, each to procure its mate. This, we are sorry to say, is the only redeeming good quality we can point out in the character of the Shrike genus; for in all other respects, their whole lives seem to be spent in dealing out death and terror to their fellows of the feathered creation. A London bird-catcher, not long ago, caught one of them (*Lanius excubitor*,) in his clap-net, in the act of pouncing down upon a valuable decoy Linnet. At first he thought himself fortunate in capturing so rare and valuable a prize, but in a very short time he was glad to get rid of it at any price, for though it fed well on small birds and raw meat, and seemed tolerably accustomed to confinement, the moment it opened its mouth, and uttered its well-known note, his whole collection of singing birds were put to silence. All small birds, indeed, have the strongest antipathy to the Shrike, either betraying anger, or moaning, or expressing signs of fear when it approaches their nests. They will also mob, attack, and drive it away as they do the Owl, as if they were well aware of its plundering propensities; and with good reason, for it will conceal itself in a bush, or perch itself on some upper spray, to look out for prey; and, no doubt, avails itself of the absence of the parent birds, in order to pillage their nursery of nestlings; for a game-keeper, who was in the habit of rearing Pheasants, observed, that if any of his brood were weak or

sickly, a Shrike would occasionally contrive to draw them out, through the bars of the breeding-coops; and a gentleman who lived in a part of North America, where several of them harboured, actually discovered them taking his favourite singing-birds out of the cages which hung by his window.

Their usual food is, however, insects; but whether birds, mice, or insects, the same singular propensity has been remarked, that of frequently impaling the object they have caught, on a thorn or pointed stick. That it thus destroys, when opportunity occurs, a far greater quantity of living subjects than it can possibly consume, is unquestionable; for they have been seen to be all day long seizing insects, as if actuated by a desire of destroying life, rather than procuring a store of food. This apparently wanton cruelty, may, however, be turned to good account, for we have no doubt, that it was by a species of this bird, called the Collared-shrike, (*Lanius collaris*,) that the following check was given to a plague of locusts. The account was sent from the Cape of Good Hope, in 1829. During the Spring of that year, the locusts abounded to such a degree on the southern coasts of Africa, that the whole country was completely ravaged, and the most serious apprehensions were entertained for any renewal of vegetation which the rains might promote, when the locust-birds made their appearance in vast flocks, and successfully interfered. The writer adds, that their mode of attacking, and destroying, and impaling these destructive insects, was quite extraordinary, and far surpassed all human efforts.

Mr. Selby, a celebrated English naturalist, was fortunate enough to see the whole process of pinning a Hedge-Sparrow by one of these Butcher-birds. Having seized his victim, he immediately killed it, and then hovered with it in his bill for a short time over the hedge, apparently occupied in selecting a thorn suited to his purpose. Upon disturbing it, and advancing to the spot, he found the Sparrow already firmly fixed by the tendons of the wing, at the selected twig. In another instance, a Shrike was observed busily occupied near a thorn-hedge: on examination, three frogs, and as many mice, were found regularly spitted on thorns. With the design of catching this Butcher-bird, six very small steel traps were set, baited with mice. On the following day, two of the traps were found to be sprung, and the baits gone. As it was not an easy matter to accomplish this without being caught, the traps were then watched. At length, the Shrike approached, and darting down, was rising perpendicularly with his prize; but in this instance, notwithstanding the celerity of his movements, the teeth of the trap caught his claws, and secured him by two of the toes. The bird was put in a room, in which a thorn-bush was placed, and some dead mice provided, one of which he was soon observed to seize, and spit on a thorn with the greatest quickness and dexterity*.

That one of the reasons for thus transfixing their prey is for the purpose of more conveniently feeding on it, there can be no doubt; for if confined in a

* *Lin. Trans.* vol. xv.

cage, they evince a similar propensity, and if not provided with a thorn, will invariably fasten it to the wires before commencing their repast. It has, however, been suggested, that as the quantity destroyed, particularly of insects, so far surpasses the wants of the destroyer, they may be placed on the thorns as baits. This seems to be a prevailing opinion in America, where one species of this bird, called the Nine-killer, is very abundant, for on spots frequented by it, the thorn-bushes may be seen furnished on the naked thorns with grasshoppers,



THE SHRIKE.

transfixed precisely in the same manner; all regularly, and in their natural position as when on the ground, not one of them having his back downwards. After the frost sets in, there they still re-

main unconsumed; the Shrikes, at the same time, watching the smaller birds, and catching them near these hedges.

Of the two sorts visiting England, one only, we believe, breeds here, namely, the Red-backed Shrike (*Lanius collurio*.) It is one of our latest birds of passage, probably coming from a great distance, as it is found in the southern part of Africa, as well as South America, and also probably because the insects it prefers are not abundant till late in the spring-season. There is another peculiarity worthy of notice; that it is, generally speaking, very rare in most parts, confining itself to particular districts, such as parts of Essex, the Sussex downs, Wiltshire, and Gloucestershire, where it is by no means uncommon. May not this be attributed to something in the soil, or other local causes favourable to the production of its favourite food? If so, it might be desirable to ascertain to what species of insect it gives the preference, which might lead to some curious inferences in natural history,—throwing light on the remarkable locality observed so often in the animal as well as vegetable world; for, notwithstanding the greatest care and attention, although not the slightest difference of soil, climate, or situation can be pointed out, it has been often remarked that an insect, or a plant, abundant in one place, is not to be found in another, at no great distance.

A few years ago, a naturalist, for curiosity, removed to his garden several webs-full of the larvæ of the brown-tail moth (*Ph. phæorrheus*), which, from its numbers and voracity had been looked upon as a perfect scourge where it abounded. For

a time, the caterpillars seemed to feed and thrive, and finally, spun themselves up. In the next season, however, few came forth; and at the season when the hedge might have been expected to swarm with the newly-hatched eggs, not one appeared. But, to return to our Shrikes; in the parts of England frequented by them, no great difficulty or acute observation is requisite for finding them out. In the first place, the bird announces its arrival by a croaking and most unmusical voice, from the summit of some tree; then it builds a large and ill-concealed nest, which, if not found out by actual detection, the male will usually discover by its own imprudence, manifesting great uneasiness and clamour when any one approaches. No sooner are the eggs hatched, than the female lends her aid to the discovery of her brood, uniting her vociferations to those of the male. And should the nest, by extraordinary good-luck, continue undiscovered, no sooner are the young ones capable of making a noise, than they all join in the cry upon any approach to their bush. We have noticed the lengthened kindness existing between the old and young birds; this begins from the moment of their issuing from the egg; for no birds can be more assiduous in their attentions to their offspring, than the old Shrikes, feeding them most carefully, long after they have left the nest,—an instinctive precaution, probably more necessary in these than most other birds, as, for a long time, in consequence of their being heavy and inactive when young, they would be unable to pursue and capture those winged insects which constitute their chief food. If taken early, they may be

easily tamed, but their pugnacious disposition, which does not appear in their own family circle when wild, is often fatally conspicuous when they are confined in a cage. Mr. Montague, who kept several, found, that at about the end of two months, violent battles ensued, to such a degree, that he was obliged to separate the survivors, and chain them in the manner Goldfinches are frequently confined, when they became very docile,—would come when called, for the sake of a fly, of which they were remarkably fond, though they would also eat mice or birds, spitting, or fastening them,—or pieces of raw flesh, on their cage, in order to tear them; disgorging the feathers, fur, and bones, in pellets, like Hawks and Owls.

Of two thus kept for some time, the deaths were rather singular; one choked itself by swallowing too large a quantity of mouse-fur, which it could not disgorge,—the other, by eating to such a degree, that it actually died of fat and repletion, expiring in Mr. Montague's hand, in a fit, when in the act of feeding on insects. In some countries, the young of the species of Shrike found there, are trained for hawking or other purposes.

In Russia, they are sometimes used for the former amusement; in Bengal, they are taught to fight,—a cruel diversion—one being held up opposite to another, in the hand of a man, to whose finger the bird is fastened by a string, sufficiently long to enable it to fly at and peck its adversaries. By others, it is so well trained, that, at a given signal, it will seize and carry the small golden ornament usually worn on *the head* of young Indian females, and convey it to

its master. It will also, with wonderful celerity, follow the descent of a ring, purposely thrown down a deep well, catching it in its fall, and returning it to its owner.

In parts of Holland and Germany, it is used for catching Hawks, in rather a curious way, showing some other of its peculiarities. The Falcon-catchers generally make their preparations in October and November, when the Hawks are on their passage towards the southern parts of Europe. The falconer constructs a low turf hut, in an open part of the country, with a small opening on one side; at about a hundred yards' distance from the hut, a light-coloured Pigeon is placed in a hole in the ground, covered with turf, with a string attached to it, which reaches to the hut; another Pigeon is placed in a similar situation on the opposite side, at the same distance. At ten yards' distance from each Pigeon, a small bow-net is fixed in the ground, so arranged, as to be pulled quickly over by means of a small piece of iron, made fast to the net, and reaching to the hut: the string by which the Pigeon is held, passes through a hole in a piece of wood driven into the ground, in the centre of the bow-net. The falconer has also a decoy-pigeon, in a string, at a short distance from the hut; and several tame pigeons at liberty on the outside, which, on sight of a Hawk, immediately take shelter within. The Butcher-bird is fastened by a leather thong on a hillock of turf, a yard in height, and a few yards distant from the hut; a small hole is made, and a piece of turf laid over, for a place of retreat in case of danger.

The falconer has some quiet and sedentary employment in hand, to occupy his time, which does not prevent his observing every motion of this his little watch-bird; and it is almost incredible at how great a distance he will perceive a Hawk in the air. If it comes near, he shows symptoms of alarm,—drawing in his feathers, and fixing his eyes in the same direction: on its approaching still nearer, he screams aloud; the Hawk being then, perhaps, not less than three or four hundred yards distant; on its closer approach, he retreats under the turf, and quite conceals himself. It is then the falconer draws out the Pigeons where the nets are fixed, which, fluttering round, generally tempt the Hawk to make a stoop at one of them, which if he takes, he is inevitably insnared. While the Hawk is near, the Shrike continues in his hiding-place, hardly daring to show his head at the entrance of his retreat: should the Hawk be taken, or pass over without touching the Pigeons, he cautiously creeps out, yet almost afraid to trust himself on his hillock, looking on every side; and does not for some time recover from his alarm. There is one Hawk, the Goshawk, of which he is particularly afraid, screaming louder than ever, and making every attempt to escape, as if aware that this Hawk will even seize him in his hiding-place, should it catch sight of him, which the other hawks will not do. He, on the other hand, shows less alarm at the sight of the Kite or Buzzard, unless very near indeed; so that, by the motion of the Butcher-bird, the falconer can tell, almost to a certainty, what species of Hawk is approaching, *without running* the risk of discovery, by looking

out from his retreat. Were it not for the penetrating and keen eye of this his watch-bird, he would sit many dreary hours to no purpose, as he would not know when to pull his Pigeons out to lure the Hawk. Like most other birds, they appear constant to particular spots for breeding. A bird-collector, in the island of Anglesey, mentioned his having, for many seasons, found a few in, or near, a certain field: his mode of catching them was by watching the twigs on which they perched, on returning to their nest. These he prepared with bird-lime: and seldom failed capturing several specimens.

Some of the foreign species of Shrikes have an addition of plumage of a fanciful character. The annexed is a representation of the Puff-backed Shrike; the light downy tuft bears a close resem-



blance to a powder-puff; it must add either to the comfort or convenience of the bird, though in what way we can form no opinion.

After the Shrikes, we find in the tables the Thrush genus, (see Table VII., page 13), of which we have

in England seven species, viz.—1. Missel-Thrush; 2. Fieldfare; 3. Song-Thrush; 4. Redwing; 5. Ring-Ousel; 6. Blackbird; and 7. Water-Ousel or Dipper.

The first of these, the Missel-Thrush, is not only the largest, but the finest and boldest of the family, and has some claims to our esteem from its being the earliest song-bird of the year; often favouring us with its notes, at a season when every other bird slinks away to its hiding-place, glad to escape the inclemency of the weather. In the height of a heavy gale of wind, the Missel-Thrush may be seen braving the blast, perched on the quivering branch of some tall tree; hence it has gained the name of the Storm-Cock. It is, moreover, a gallant bird: and, during the breeding-season, woe be to the Jackdaw or Magpie that ventures to cast a wistful eye at its eggs; nay, more, we have known it attack even a Hawk, and fairly drive him from the neighbourhood.

The Redwing and Fieldfare are but visitants. Their summers are passed in far distant northern regions, where they rear, unmolested and unseen by man, those immense flights which frequent our fields and forests in the winter season. It is generally supposed that they are hardy birds; but the very reverse is the case, for, in severe weather, should there be a dearth of food, they are the first to suffer. In hard winters, when sudden falls of snow have deprived them of their usual supply, thousands have been known to perish on the coast, unable, through weakness, to take flight for a more southern climate. In January, 1815, when a heavy fall of snow fell on the 19th, and remained one deep white mantle over *the face of the country*, till the 29th, during which

time the thermometer, even at noon, rarely rose above the freezing-point, we recollect finding dead Redwings in greater numbers than any other birds. They are naturally remarkably shy, but hunger soon makes them tame, as many a Christmas school-boy knows; when, if the weather is mild, he in vain endeavours to get a shot at a chattering party, temptingly perched on a naked bough; whereas, should a severe frost set in, they seem to invite his approach, and allow him to take a steady aim within a few yards. Our common Song-Thrush, however, is a more social bird, and, if unmolested, will build its nest frequently almost within sight of our windows. Instances have indeed occurred of still greater confidence. Thus, a short time ago, in Scotland, some carpenters, working in a shed adjacent to the house, observed a Thrush flying in and out, which induced them to direct their attention to the cause, when, to their surprise, they found a nest commenced amongst the teeth of a harrow, which, with some other farming tools and implements, were placed upon the joists of the shed, just over their heads. The carpenters had arrived soon after six o'clock; and at seven, when they found the nest, it was in a great state of forwardness, and had evidently been the morning's work of a pair of these indefatigable birds. Their activity throughout the day was incessant, and when the workmen left off in the evening, and came again in the morning, they found the female seated in her half-finished mansion, and, when she flew off for a short time, it was found that she had already laid an egg, though the bottom of the nest was the only part plastered and completed, evidently to meet

the pressing necessity of the female bird. When all was finished, the cock took his share in the hatching, and, though he did not sit so long, he was very attentive in feeding her when on the nest. In thirteen days the young birds were out of their shells, which the old ones carried off. It is generally supposed that the usual food for nestling Thrushes consists of grubs and worms, quantities of which they may be constantly seen collecting on lawns, particularly after showers have moistened the earth. And to those who have opportunities of observing them, nothing can be more interesting than the way they, as well as Blackbirds and some other birds, set about it.

Watch an old Thrush pounce down on a lawn moistened with dew or rain. At first he stands motionless, apparently thinking of nothing at all,—his eye vacant, or with an unmeaning gaze. Suddenly he cocks his ear on one side, makes a glancing sort of dart with his head and neck, gives perhaps one or two hops, and then stops, again listening attentively, and his eye glistening with attention and animation. His beak almost touches the ground,—he draws back his head, as if to make a determined peck. Again he pauses; listens again; hops perhaps once or twice, scarcely moving his position, and pecks smartly on the sod; then is once more motionless as a stuffed bird. But he knows well what he is about. For after another moment's pause, having ascertained that all is right, he pecks away with might and main, and soon draws out a fine worm, which his fine sense of hearing had *informed him* was not far off, and which his hops and

previous peckings had attracted to the surface, to escape the approach of what the poor worm thought might be his underground enemy, the mole. But to return to the young Thrustles in the shed. In this case the food was not worms, but snails. The old ones brought them in their shells, from which they cleared them, by breaking the shell with a smart knock on the tooth of the harrow, catching the snail, without, in one instance letting it fall. They now and then varied the feast with a few worms, and occasionally with butterflies and moths. As is usual with almost all birds, the old ones were invariably seen to carry away the dung of the young birds, which might otherwise, by its accumulation, be a great inconvenience. They would, however, be unable to do this, were it not for a curious natural precaution, namely, that the dung of young birds is voided in a thin tenacious bladder or bag, which can be removed without breaking. As the young grew, and required greater supplies, the entrance and retreat of the old ones through the door was so rapid that it could scarcely be seen, but was only known by the sound, as they darted over the heads of the men; another proof of the rapidity of flight, of even the slower flying birds, when urged by necessity.

The above fact, of Thrushes feeding on shell-fish, has been corroborated by the observations of a naturalist, who on the shores of the Hebrides, on the western coast of Scotland, found small heaps of shells belonging to two particular species, whelks and periwinkles, always broken, but without the animal, although many appeared quite fresh. On frightening away a Thrustle, which he had seen engaged in

breaking something which it held in its beak against a stone, he found one of the small heaps of whelks, among which was a fresh one, newly broken, and containing the animal. As the shell of the whelk and periwinkle is much harder than that of the common snail, it was a matter of considerable surprise how so tender an instrument as the beak of a Thrush could accomplish it, but we see in the above case that the bird was instinctively taught to avail itself of a power which accident placed within its reach.

Here we have a curious instance of a Thrush's confidence in man: but a more singular instance, considering the nearness of the parties concerned, fell under our observation a season or two ago; namely, a Blackbird's nest on the ground, in a tuft of grass or rushes close to the seat of a rabbit, the tail, in fact, of the rabbit, being in contact with the nest. As the seat as well as the nest were both occupied, these two companions must have sat meditating together for many a day, in perfect peace and good fellowship. We do not know whether the Blackbird ever sings on its nest, which might have been a very gratifying attraction to the rabbit; but the Thrush unquestionably sometimes does. Few birds, indeed, seem to be more liberal in the use of their voice; we have heard it repeatedly, on fine nights, in the latter end of May, singing till after dark, and have been roused from our slumbers by a repetition of the same well-known song by two o'clock in the morning.

Those who have seen a young Cuckoo fed by its *unsuspicious* step-mother, seated on a bough or a rail,

Young Cuckoo fed by a small Bird.





opening its wide-gaping mouth, as if ready to swallow the poor little bird that hung over it with fond attachment, fluttering its little wings as it dropt a caterpillar down the monster's greedy throat, will be the less surprised at the following anecdote, of what may be called unnatural attachment between Thrushes and birds of a very different character.

We know nothing of the strange ways by which Providence brings about some of the apparently singular contradictions in its established rules ; but knowing for a certainty that by some strange delusion, a small Hedge-Sparrow is persuaded to look upon an enormous Cuckoo as its own beloved young one, may we not suspect that the Cuckoo has some instinctive mode of gaining the affections, or attracting the attention of those birds from whom it requires assistance? The case was this,—A young Cuckoo was taken from the nest of a Hedge-Sparrow, and a few days afterwards, a young Thrush, scarcely fledged, was put into the same cage. The latter could feed itself, but the Cuckoo, its companion, was obliged to be fed with a quill ; in a short time, however, the Thrush took upon itself the task of feeding its fellow-prisoner, and continued so to do with the utmost care, bestowing every possible attention, and manifesting the greatest anxiety to satisfy its continual cravings for food*.

* In dissecting a young Cuckoo, killed August 20, 1833, about twenty full-grown caterpillars, of the peacock butterfly (*Pap. Io*), were found undigested. The stomachs of these birds are remarkable for having a coating of hair, which, when dried and turned inside out, looks very similar, in colour, size, and form, to a mouse's head.

The following is a still more extraordinary instance, corroborating the above, and for the truth of which we can vouch in every particular. A young Thrush, just able to feed itself, had been placed in a cage; a short time afterwards a young Cuckoo, which could not feed itself, was introduced into the same cage, a large wicker one, and for some time it was with much difficulty fed; at length however it was observed that the young Thrush was employed in feeding it, the Cuckoo opening its mouth and sitting on the upper perch, and making the Thrush hop down to fetch food up. One day, when it was thus expecting its food in this way, the Thrush seeing a worm put into the cage could not resist the temptation of eating it, upon which the Cuckoo immediately descended from its perch, and attacking the Thrush, literally tore one of its eyes quite out, and then hopped back: the poor Thrush felt itself obliged to take up some food in the lacerated state it was in. The eye healed in course of time, and the Thrush continued its occupation as before, till the Cuckoo was full grown.

The Fly-Catchers form the third genus of the notched-billed birds: we have but two sorts in our country; and one of these the Pied Fly-catcher (*Muscicapa atricapilla*) is so rare as to be seldom seen; the other, however, known by the name of the Beam-bird, is common enough, building very frequently upon the ends of beams, or rafters in garden-houses, from whence it probably takes its name. They act the part of Hawks amongst flies, feeding on them alone, and always on the look out. In summer time, it is very interesting to watch a

Beam-bird perched on some prominent twig, commanding a view all round. In an instant it may be seen to dart, like a little shot, upon a fly, passing often at so great a distance, that it would quite escape our powers of vision; but by no means that of this keen-sighted bird, for the fly is no sooner seen than caught, and brought back with equal rapidity to the twig on which the bird was before perched. The clearness of sight in birds is indeed prodigious, and has been calculated by an eminent naturalist, (Lacépède), to be nine times more extensive than that of the farthest-sighted man.



THE PARADISE FLY-CATCHER.

The foreign varieties of this bird are, many of them, of exquisite beauty in plumage, and elegance in form; we may mention for example, the Paradise Fly-catcher.

Of the fourth genus, (the Cotingas,) we have but one species in England, and that but rarely seen, the Silk-tail, or Waxen Chatterer, from the secondary quills of the wings being ornamented with a flat horny substance, of a bright vermilion colour, looking like red sealing-wax. In foreign countries, however, there are many varieties, amongst others the singular Bell-bird, of which we have spoken. It is about the size of a Jay, of a pure white, with nothing remarkable in its appearance, except that from the junction of the forehead and base of the beak, a long fleshy sort of slender wattle hangs down; the bird has, however, the power, either by filling it with air, or exciting the muscles, of rendering it quite stiff, when it sticks up like a horn of about two inches in length. We have alluded to the probability of this odd appendage, in some way or other, being the cause of the deep bell-toned sound of its note, the air it contains probably contributing to its utterance.

Of the Tanagras (Table VII., p. 13,) we have not one in Europe; which is much to be lamented, for although they would not enliven our groves with their song, the brilliancy of their plumage would make ample amends. In the different species, every colour in its brightest hue may be found, sometimes mingled together, as in the Painted Tanager (*Tanagra picta*), where the brightest shades of green, blue, orange, and black, are so intermingled

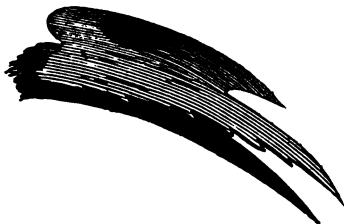
as to render it, when exposed to the full rays of the sun, almost dazzling to look upon. In another, the Scarlet Tanager, there are only two colours, but so contrasted as to produce the strongest effect; the wings and tail appearing like the deepest shade of jet-black velvet; while the rest of the bird is of the deep crimson blood-red colour of the fleshy part of a ripe cherry. Its note is very simple, but has one peculiarity; viz., that although the bird may be close at hand, the sound appears to come from a distance; and as it lives generally in the most secluded shades of the forest, it is not improbable, that this deception in its note may often be the means of preserving its life, the hunter being thus led away from an object so easily discovered; but which, owing to the apparently distant sound, he little suspects to be within his reach.

TABLE VIII. (See page 13.)

Order 2. PASSERINE. Tribe 2. SERRATIROSTRAL (*serrated bills*), so called from the jagged or tooth-like edges of the bill.

THIS tribe consists but of three genera: 1. The Plant-cutter; 2. the Momots; 3. the Hornbills; all foreign birds, and their habits but little known. Of the last, namely the Hornbills (*Buceros*), living specimens are occasionally taken; and in the Spring of 1833, one was procured for the Zoological Gardens, in the Regent's Park, London, but notwithstanding every attention, it did not live long. Of the seemingly deformed and monstrous bills of these birds, we have already spoken. Of their use, we

are still much in the dark, but if, as may be presumed, the horny substance is furnished with highly sensible nerves, for the purpose of smelling or feeling, we can more easily account for their instinctive



discovery of snakes, on the eggs of which, as well as insects and fish, they feed. On passing over a spot where the snake has concealed itself, though many feet under ground, the Hornbill immediately begins digging, till it has uncovered it. They are found in Africa, but even there seem to be scarce, and are highly prized; their flesh being used as a remedy in many disorders, being placed hot to the part affected.

TABLE IX. (See page 14.)

Order 2. PASSERINE: Tribe 3. *PLENIROSTRES* (*full and strong beaked.*)

THIS tribe comprises a number of full and strong-beaked birds, some of which, as the Pies and Crows, are familiar to us; others again, such as the Grackles and Paradise-birds are foreigners. The Grackles, indeed, are widely spread, some species inhabiting *the hottest*, and others the coldest climates, from the

torrid zones of India to the remoter parts of North America: and they might probably be naturalized in this and other countries, where hitherto they have been strangers.

Like our Jackdaws, with which, indeed, they are very closely allied, being the connecting link between the Crow and Thrush tribe, they are a pert, familiar, lively race, soon tamed, and when so, making themselves so perfectly at home, as to be often a great inconvenience. In North America they contrive to gain the good will of even a greater enemy than man, no less a one than the Osprey, or Sea Eagle, which actually permits them to build their nest amongst the interstices of the sticks of which its own nest is framed, where they hatch their young, and live together in harmony*, like the small bird in the nest of the African Eagle, mentioned in p. 131.

They herd together in immense flocks, rising from the ground in such prodigious numbers, that their wings make a noise resembling thunder; and when they settle, whole trees are covered from the top to the lowest branches, looking as black, as if hung in mourning. In India they assemble in much the same way, though not quite in such abundance, and like our Rooks and Crows, are suspected of doing mischief, by picking out the new-sown grain; but as we shall soon see when we come to treat of our Crows, the charge is a good deal exaggerated.

It happened some years ago, that one of the French islands, in the East Indies, was overrun with locusts, to such a degree, that there was every ap-

* Richardson's *Fauna Americana*.

pearance of the crops suffering severely. The governor, a sensible and observing man, and well acquainted with the habits of the Grackles, imported a number of them from the Continent, as they never bred upon, or visited the island. The consequence was, that the locusts rapidly diminished in number; but the people, seeing the birds busied in thrusting their bills into the new-sown fields, fancied they could be only occupied in picking out the grain, and accordingly they made war upon the poor Grackles, and destroyed them all, and forthwith the locusts re-appeared in full force. The fact is, the Grackles, like our Rooks and Crows, are great destroyers of grubs and insects, though at the same time it cannot be denied, that they may occasionally commit partial depredations on the farmer's property.

Some birds of the Grackle genus have a singular appendage to the head, composed of a naked skin or wattle, which gives them a very odd appearance. The annexed figure is the head of the *Gracula religiosa*.



Of the Paradise-birds we know but little, for *they are almost entirely confined to New Guinea,*

and a few neighbouring islands in the India seas, inhabited by wild tribes, with whom travellers have but little communication. These people catch the Paradise-birds, and dry their skins, which they barter with ships passing along the coast. It was for a long time believed, by ignorant persons, that they had no legs, for they were never seen alive, excepting when flying across from one island to another, the natives always bringing dead specimens for sale, without the legs, possibly because they thought they looked better without them, in many species the leg being coarse and unbecoming a bird in every other respect so exquisitely beautiful. It is quite impossible to describe their beauty, or give even a faint idea of it without coloured representations; and few of the most favoured of the feathered race can rival them in the gorgeous variety and singularity of their splendid dress. Some are ornamented with light projecting tufts, of a fine downy substance, while others have plumes and tendrils flying out in every direction, like pennants and streamers, while their bodies glisten with the most dazzling and resplendent hues, changing from crimson and gold, to the most delicate green or purple, according as the sun's rays fall upon the feathers. It is said that they frequent the most retired spots of the thick woods of their native country. If so, it is difficult to conceive how they can move amongst close and entangled boughs without injuring their loose and delicate robe of plumage; or for what purpose Providence has so fancifully and profusely decorated them with ornaments apparently so inconvenient.

None have ever reached this country in a living state, and but one species, that we are aware of, has ever been kept in confinement. This was the great Paradise-bird, the flowing yellow plumage of whose



THE GREAT BIRD OF PARADISE.

tail is so much prized as an ornament for ladies' head-dresses. It was in the possession of a gentleman who had a valuable aviary of the rarest foreign birds, at Macao, in China. He kept it in a large cage, where it had abundance of room for the display of its gaudy dress, of which it seemed very proud; dancing about when visitors approached, as if delighted at being made an object of admiration. It washed itself twice every day, and then threw up its delicate feathers nearly over its head. Nothing appeared to disturb it so much as any sort of dust attaching itself to its plumage. For at its toilet it pecked and cleaned all within reach, and throwing out the elegant and delicate tuft of feathers under-

neath the wings, cleaned each in succession, by passing it through its bill. Having completed its toilet, it would utter its usual cawing notes, and then look archly at the spectators, as if ready to receive their admiration*.

* See Bennet's *Wanderings in New South Wales*, vol. ii.

CHAPTER IX.

RAVENS—OCCASIONALLY DESERT THEIR YOUNG.—PREDACIOUS HABITS.—SAGACITY.—VARIOUS ANECDOTES.
 —CROWS AND ROOKS—CHARACTERS OF EACH.—TAME CROW.—MEETINGS OR COUNCILS OF CROWS, HERONS, MAGPIES, ETC.—WHETHER ROOKS ARE BENEFICIAL OR INJURIOUS TO THE FARMER.—HARD WINTERS FAVOURABLE TO INSECTS. — ROOKERIES. — RED-LEGGED CROW.—JACKDAWS.—JAYS AND MAGPIES.

To a superficial observer of nature, there may appear a much greater resemblance and connexion between the Raven, the Crow, the Rook, and Jackdaw, than we find from experience to be the case. At the same time, so different in outward appearance are the Jay and Magpie, that it may appear contrary to all rule to class them together under one head—but while there is a decided mark of separation between each, and all of them in many respects, they nevertheless are by naturalists included in the first section of what is called the genus or family of Crows. The Raven, however, from his size and character, naturally takes the lead. Go where we will over the face of the wide world, and the well-known hoarse croak of the Raven is still to be heard. He was seen perched on the bare rocks, looking over the dreary snows of the highest points visited in the Arctic Expeditions. Under the burning sun of the Equator, he enjoys his feast of carrion. He was discovered in the islands of the Pacific Ocean by Captain Cook; and in the lowest *southern, or antarctic* regions, other travellers have

found him pursuing his cautious predatory life, just as in England.

With us he may be called the herald of the year ; for as early as the latter end of January, if the weather be mild, or at all events in the beginning of February, some faithful pair, (for the union of the male and female is for life,) may be seen looking into the state of their nursery-tenement, usually constructed on the upper and most inaccessible branching fork of some high tree, where they have been known to build beyond the memory of the most ancient chronicler of the parish. Probably most of our readers have, if not within their own precincts, at least within their knowledge, a venerable establishment of this description. Ours is a noble beech, about ninety feet in height, in the centre of a beautiful wood,—from time immemorial called the Raven tree. At one extremity of this wood, a noisy troop of Jackdaws have long been accustomed to rear their progeny unmolested, provided they venture not too near the sacred tree of the Ravens,—in which case, one or other of the old birds dashes upon the intruder, and the wood is in an uproar, till the incautious bird is driven off. Few have dared to scale the height of this famed tree ; but the names of one or two individuals are on record, who have accomplished the perilous undertaking, and carried off the contents of the nest.

Some years ago, the wife of a neighbouring farmer made such loud complaints, on the diminution of a fine brood of young turkies, which occasionally wandered from her farm-yard into some fields adjacent to the wood, that one of the old ones was

shot: it proved to be the female, whose young ones had unfortunately been hatched, and were then nearly fledged. For a time, the surviving parent hovered about the nest, uttering loud and menacing croakings whenever anybody approached. At length, however, he disappeared, and absented himself for two or three days, and then returned with another mate; when a strange scene occurred. The poor half-starved nestlings were attacked without mercy by the stepmother; who, after severely wounding, precipitated them from the nest; two, however, were found at the foot of the tree with signs of life, and, with great care and attention, reared at the rectory, about half a mile distant, and, after being slightly pinioned, were allowed their liberty; but they seldom quitted the lawn or offices, roosting in a tree in the shrubbery. Here, however, they were soon discovered by their unnatural parents, who, for a long time, used to come at early dawn, and pounce upon them with fierce cries. This antipathy to their young (which by several authors has been considered as peculiar to Ravens), has been remarked by many, who have not only known them to show great indifference to any young ones accidentally thrown out of the nest, but have further ascertained that the parents actually devour them.

It would appear from some passages in the Sacred Scriptures, that the desertion of their young had not escaped the observation of the inspired writers. It was certainly a current belief, in the olden times, that when the Raven saw its young ones newly hatched, and covered with down, it conceived such *an aversion*, that it forsook them, and did not return

to the nest, till a darker plumage had shown itself. And to this belief commentators suppose the Psalmist alludes, when he says, *He giveth to the beast his food, and to the young ravens which cry* (Psalm cXLvii. 9.) And again, in Job, *Who provideth for the raven his food? When his young ones cry unto God, they wander for lack of meat.* (Job xxxviii. 41.)

But we do not believe this want of feeling to be peculiar to Ravens; on the contrary, in an aviary where several Canaries build annually, instances repeatedly occur, of young birds falling out of the nest, when, if they are of very tender age, the old ones seem to show no uneasiness whatever; hopping or flying over them with the greatest unconcern, though the poor naked birds may be struggling for life.

We have yet, indeed, much to learn respecting the real extent and quality of the affection of animals for their young; for in the case of Canaries, we have known, if wet or cold weather chanced to continue for a day or two, not only nests containing eggs, but others, with nearly full-fledged nestlings, requiring all a mother's care, to be at once abandoned, and left to perish by cold or hunger.

On the 2nd of June, 1833, a Canary-bird, in an aviary, was unexpectedly drenched, having built her nest, during dry weather, in a spot exposed to rain, which fell in a heavy shower on that day. On the following day, she accordingly quitted her nest, and appeared so unwell that it was deemed expedient to remove her into a small cage, and place her in a warmer situation. But to our great surprise, a Goldfinch, which had been in confinement with the Canary-birds for three or four years, without paying any

attention to the nests, immediately took her place, and continued to sit very closely, though uselessly, over the chilled and lifeless eggs, which were completely addled.

At all events, while sitting or rearing its progeny, the Raven deserves the highest credit for persevering attachment, and has been known (though one of the shyest and most suspicious of birds) to die rather than desert its post. Mr. White, the naturalist, of Selborne, speaks of an old oak as his Raven-tree, which bulged out into a large excrescence in the middle of the stem, defying the attempts of all who aspired to get at the nest. Many had tried in vain; all were ambitious of surmounting the arduous task, but when they arrived at the swelling, it jutted out so in their way, and was so far beyond their grasp, that the most daring and expert climbers were awed, and were obliged to give up the undertaking as too hazardous. So the Raven built on, nest after nest, in perfect security, till a fatal day arrived, when the wood was to be levelled. It was in the month of February, and the old one was on her nest. The saw and the hatchet were both at work, the wedges were inserted into the opening, the woods echoed to the heavy blows of the beetle or mallet, the tree nodded to its fall; but still the dam sat on. At last, when it gave way, the bird was flung from her nest, and, though her constancy deserved a better fate, was whipped down by twigs, which brought her dead to the ground.

But constant or affectionate as they may be to their brood, it lasts but for a time; and as is the case with Eagles, and indeed almost all birds, when

the young ones are sufficiently matured to take care of themselves, the old ones invariably drive them away, and live independently. We have noticed their hostility to the Jackdaws and other birds daring to intrude on their favourite haunts; they are themselves, however, occasionally very outrageous marauders on the property of others. Between Rooks and Ravens, if a rookery perchance is within visiting distance of a Raven's abode, there is eternal warfare; and no wonder, for they will venture to attack the very nests, and carry off the unfledged Rooks as food for their own young; and those who are partial to rookeries, have found it necessary to shoot the Ravens, and destroy their nests, as the only effectual means of keeping peace amongst the Rooks. But notwithstanding the Raven's superior courage, he does not always succeed; for not only Rooks, but Carrion Crows will sometimes put them to flight. A person once heard an uncommon chattering and clamour proceeding from a tree, and going near, to learn the cause, observed no less than three Ravens successively issue from the tree, followed by a single Crow, which pursued and drove them fairly off.

Generally speaking, they are solitary birds, the same pair only remaining together; but occasionally this is not the case, particularly in the northern parts of Europe, where they are more abundant, and are often seen in greater numbers. Thus, in the month of June, 1832, a party leaving the bay of Kirkwall, in the Orkney Islands, north of Scotland, counted twenty-four of these birds passing over their heads, flying towards the north; they were very near to each other, and followed in the same way as Rooks

usually do in returning to their rookery; and about a week afterwards, twenty-six were observed by the same party flying to the southward. There is reason, however, to believe that these assemblages of Ravens ought not to be admitted as proofs of their being, under any circumstances or seasons of the year, really gregarious; that is, naturally disposed to associate in flocks, but is rather to be attributed to the attraction of distant food, which, if beyond the reach of vision, they can, by some unknown faculty, discover at great distances. It can scarcely be by scent, for in those northern regions, when all is calm and quiet, and the severity of frost rapidly destroys all the effluvia of dead matter, still troops of Ravens, within an incredible short time after the slaughter of an animal, will be seen advancing from all points to this common centre of attraction, like the Vultures of which we have before spoken, though, at the time, not a single bird was to be seen on the wing. This sagacity in discovering their prey is, indeed, too well-known in some less favoured spots, where food is scarce for man as well as beast or bird, and the Raven's presence is looked upon as a perfect nuisance. Thus, in the Hebrides, Shetland, Ferroe Islands, and Iceland, they are sadly destructive. Nothing escapes them; they watch the Wild Duck to her nest, and drive her from her eggs; they pounce upon fish like the Fishing Hawks; they attack the ewe as well as the lamb, and fixing on a galled horse, feed on his flesh even while living. It is not, therefore, surprising, that laws are made for their extirpation. Accordingly, in the Ferroe Islands, every man, who is in a condition to catch fish, must *deliver*, annually, the bill of one Raven, or those of

two Crows, or, in failure thereof, must pay a certain sum to the provincial judge, that these destructive birds may be exterminated. Besides its human enemies, it has, in those islands, other very formidable ones of its own order, in the shape of certain sea-birds, called the Oyster-catcher (*Hæmatopus ostralegus*) or Sea-pie, and the Puffins, or Sea-Parrots. The former follows it in its rapid flight, and darting its long sharp bill into its back, makes it scream out, and then, by a shrill cry, collects several more of its own species, which unite in pursuing the persecuted Raven, and oblige it to seek shelter in holes amongst the rocks, where its back can be protected.

The Puffin acts rather in self-defence, for the Raven is the aggressor,—attacking the Puffins for the purpose of eating their eggs, of which the Ravens are remarkably fond; in this case, a desperate fight ensues; for the Raven usually takes an opportunity of committing the theft when the Puffins are at sea in search of food, and he can, without opposition, enter the holes or burrows in which the Puffins breed; but should the latter catch the robber in the hole, on returning, it darts its claws into his breast, seizes him by the neck with its strong razor-formed bill, and as soon as they issue from the hole, struggling with each other, the Raven endeavours to ascend to the land, while the Puffin, on the contrary, does its best to descend to the water; and if it succeeds, it becomes, for the most part, the conqueror, for when the Raven's feathers get soaked, he can no longer defend himself, and perishes.

Young Ravens, it is well known, may be easily tamed; but they are so cunning and mischievous,

that it is necessary for those who harbour them, to keep a constant watch on their motions, for they will catch up anything that is glittering, and carry it off to some secret hiding-place. Stories without end might be told of their thieving propensities. Let one suffice: a gentleman's butler having missed a great many silver spoons, and other articles, without a suspicion as to who might be the thief, at last observed a tame Raven with one in his mouth, and watching him to his hiding-place, discovered more than a dozen. But pilferers as they are, and inclined to mischief, they have redeeming good qualities, which often make them deservedly great favourites, and they may be sometimes trained for useful purposes.

Thus, the landlord of an inn, in Cambridgeshire, was in possession of a Raven which frequently went hunting with a dog that had been bred up with him. On their arrival at a cover, the dog entered, and drove the hares and rabbits from the thicket, whilst the Raven, posted on the outside of the cover, seized every one that came in his way, when the dog immediately hastened to his assistance, and, by their joint efforts, nothing escaped. On various occasions, the Raven has proved of more use than a ferret, and has been known to enter a barn with several dogs, and enjoy the sport of rat-hunting. The sagacity of these birds is certainly quite extraordinary, and might almost lead us to suppose that they were gifted with reasoning powers.

It would be needless to enumerate the many instances which might be mentioned. We must quote *a few*, commencing with one communicated by a

friend. All birds, we know, have an instinctive faculty of finding their way, when on the wing, to certain spots they have been accustomed to frequent, in which it might be supposed that eye-sight, from high elevation, might materially assist them; but, in the following case, it will be seen that the inhabitants of the air are not in all cases indebted to this sense for discovering their former abodes, but can, like dogs and various other quadrupeds, and even turtles, as we have before remarked, find their way by some unknown faculty, to places from which they have been removed. About five years ago, a gentleman, near Chapel-le-Frith, in Derbyshire, took a young Raven from its nest, and kept it in an out-building for a few months; its wings were then clipped, and it was allowed to go at large. It soon became well known for a mile round, regularly visiting every farmhouse within that distance whenever a pig was killed, when it was always rewarded with some tit-bits. Soon after the death of its owner, about three years ago, the Raven was given to a surgeon, resident in Stockport, Cheshire, who kept it chained by the leg for about twelve months; he then gave it its liberty, and, as before, it wandered about near home, but not with the same success, for its thigh was one day broken by some idle, thoughtless boys, who threw stones at it. The fracture was reduced, the Raven recovered, and then again took to rambling about for a few weeks, when it disappeared altogether, and was supposed to have met with an untimely end;—when, about a fortnight after it had been missed, the news arrived of its safe return to its old residence at Chapel-le-Frith, distant fourteen miles,

where it was allowed to remain, and where it still lives.

A writer in the *Naturalist's Magazine* says, that he remembers, about fourteen years ago, seeing on a post near the Elephant and Castle inn, at which such a multitude of coaches stop, an inscription on "Ralph," a Raven of great celebrity, who had been in his days a distinguished member of the Elephant and Castle establishment. Those who recollected him gave several instances of his sagacity, amongst others that of his knowledge of, and intimacy with, several of the coachmen; with his particular favourites and friends, he would frequently take short jaunts out, on the coach top, until he met some other coach, whose driver he also knew, passing in a homeward direction, when he would immediately change coaches and return.

A still more curious anecdote of attachment and observation in Ravens, we have given in our weekly Periodical, the *Saturday Magazine*, which, from its application to the subject before us, we here repeat. It occurred many years ago, at the Red Lion inn, Hungerford; a gentleman who lodged there thus tells the story:—"Coming into the inn-yard," says he, "my chaise ran over and bruised the leg of a favourite Newfoundland dog, and while we were examining the injury, Ralph, the Raven, looked on also, and was evidently making his remarks on what was doing; for, the minute my dog was tied up under the manger, with my horse, Ralph not only visited him, but brought him bones, and attended him with particular marks of kindness. I observed it to the ostler, who told me that the bird had been

brought up with a dog, and that the affection between them was mutual, and all the neighbourhood had been witnesses of the many acts of kindness performed by the one to the other. Ralph's friend, the dog, in course of time, had the misfortune to break his leg, and during the long period of his confinement, the Raven waited on him constantly, carried him his provisions, and scarcely ever left him alone. One night, by accident, the stable-door had been shut, and Ralph had been deprived of his friend's company all night; but the ostler found, in the morning, the door so pecked away, that had it not been opened, in another hour Ralph would have made his own entrance. The landlord not only confirmed the ostler's account, but mentioned many other acts of kindness, shown by this bird to all dogs in general, but more particularly to maimed or wounded ones."

But however attentive they may be to dogs, as in this case, or to men, as in the preceding one, the following instance of shrewd cunning shows that they are ready enough, when it suits their interest, to trick each other. At the Zoological Gardens, in the Regent's Park, London, two Ravens were kept in one large cage or pen: a visiter, passing by, threw them two pieces of bun, when one of them immediately jumped from his perch, and before his comrade could reach either of them, he had both secure in his beak, and had regained his former position on the perch, holding them until he saw his comrade at the further end of the cage: he then flew down, buried one of the pieces, which he carefully covered with gravel, and jumping back to his perch with the other piece,

devoured it. He then hopped down for the other piece, and regaining his perch a second time, consumed that, much to the annoyance of his companion, whom he thus artfully and cleverly contrived to outwit.

No wonder that so knowing a bird, gifted, at the same time, with a voice so deep and solemn, as to command attention whenever it is heard, should, in all ages, have impressed superstitious people with a notion that it had something unearthly in its nature; and in heathen countries especially, should have been respected by the ignorant as interpreters of the will of their idol-gods. Thus, in the remotest periods of antiquity, the Raven was consecrated to Apollo, one of their chief deities, and by the priests and people, was therefore considered as a foreteller of good or evil. Through a long course of centuries it has borne the same character, and even to this day there are not a few who believe that

— “ Ravens give the note of death
As through mid-air they wing their way.”

It is most probable that their supposed prophetic power, respecting battles and bloodshed, originated in their very frequent presence on these occasions, drawn to the field of slaughter by an attractive banquet of unburied bodies of the slain. Hence, poets have described it as possessing a mysterious knowledge of these things.

“ Ill omen'd bird ! as legends say,
Thou hast the wondrous power to know
While health fills high the throbbing veins
The fated hour when blood must flow.

The Icelanders, notwithstanding their endeavours

to destroy as many as they can, yet give them credit for the gift of prophecy, and have a high opinion of them as soothsayers. And the priests of the North American Indians wear, as a distinguishing mark of their sacred profession, two or three Raven-skins, fixed to the girdle behind their back, in such a manner that the tails stick out horizontally from the body. They have also a split Raven-skin on the head, so fastened as to let the beak project from the forehead.

CROWS AND ROOKS.

PEOPLE who live in towns, or pay little attention to these matters, would no doubt consider the above-mentioned birds, as one and the same, alike as they are in size and colour, and seen, as they usually are, spread over our fields, or uttering their well-known cawings on the top of some hedge. They are, however, as distinct in their characters and habits as a hare and a rabbit. The real Crow, commonly called the Carrion Crow (*Corvus corone*), is the next link in the chain after the Raven, which it resembles far more nearly than it does the Rook. The male and his mate, for example, seldom associate with the rest of their species except, as we shall show by-and-by, for particular purposes, but generally remain in pairs; their favourite food too, like the Raven, is carrion, and they will watch their opportunity, and pounce down on young lambs, or even sheep, when they find them, what is called, cast, that is, thrown upon their backs in a furrow, and unable to rise. In these cases the eye is the point which they first attack; but smaller

living prey they will also attempt to carry off, to be devoured at leisure. A person walking near a plantation, heard a shrill cry, and running in to find out the cause, discovered a Crow fastening itself on a young rabbit, weighing from half to three quarters of a pound, which was making great efforts to release itself, but in vain; for the Crow actually caught it up and bore it away across two or three fields. Such is their favourite food, but when pressed by hunger, they will also feed on potatoes, barley, or in short whatever comes within their reach.

The Rook, on the other hand, is a social bird, passing its days with those relations and friends, amongst whom it was born and bred, and for its food preferring a vegetable diet, or such insects as it can collect under the sod of the meadow, or pick up in its progress over a fallow or fresh-ploughed field. There is one intermediate link seen in parts of England between the Carrion Crow and the Rook, namely, the Hooded-gray or Royston Crow. They are clever birds, and when frequenting the sea-shore, in search of shell-fish, may be frequently seen, after vain attempts to break through the hard shell of a cockle, or muscle, to seize it in their bill, mount with it to a great height, and then let it fall on a hard rock, by which it is broken, and the bird has nothing more to do than to reap the fruits of its forethought.

It is said that this species of Crow will pair with the common Crow, a proof how nearly allied the two species are, as it seems almost an established law of nature, one at least rarely infringed, that *neither animals nor birds, essentially differing, how-*

ever near may be their apparent resemblance, will ever breed together. One great difference, besides the colour, which in the Hooded Crow is, as we have remarked, partly gray, is, that the latter is a regular migrating bird; that is, going and coming at certain times of the year, to certain districts; but even in this respect the Carrion Crow has been known to resemble it in a slight degree, it having been remarked by a naturalist, that in the parish in which he resided, no Crows were seen for several months, and what became of them, or whither they went, he never could learn.

The Crow, like the Raven, may be easily tamed, and converted into a very entertaining member of a family; though, like the rest of the tribe, he is sure to carry off, to some secret store, whatever he can conveniently dispose of. He soon becomes quite familiar, and distinguishes, at a glance, a stranger from one of his friends; and even after a long absence, will recollect those from whom he has received kindness. A gentleman had reared one, and kept it for a long time, but at length it disappeared, and was supposed to have been killed; when, to his great surprise, about a year afterwards, as he was walking out, a Crow, flying over his head, in company with others, left them, and flying towards him, perched on his shoulder. He soon recognised the bird to be his lost favourite; but though the Crow appeared very glad to see its old master, it seemed to have learned the value of liberty, and would not allow itself to be caught; and at last, looking up after its companions, again took wing, and was never seen or heard of more.

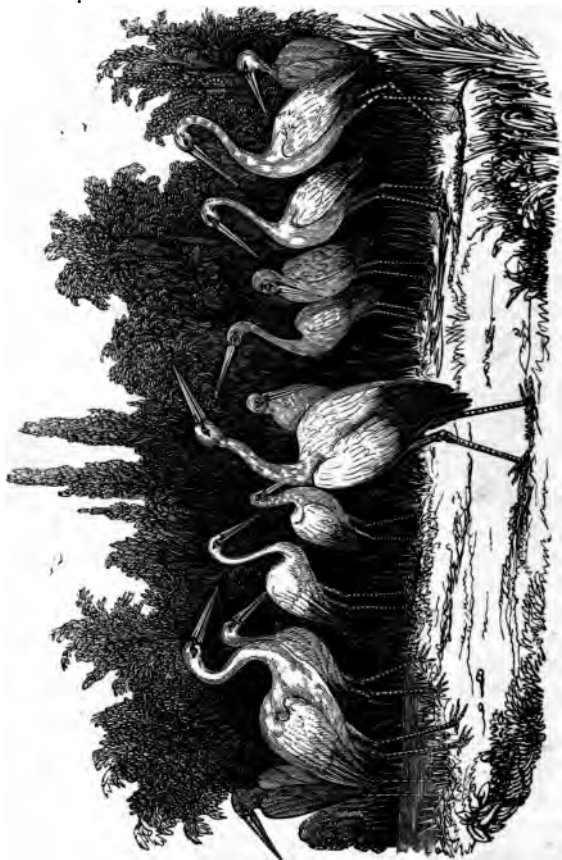
It has been observed, that they are usually of solitary habits, seldom associating in greater numbers than pairs; but this rule has also its exceptions, and the following instances of the mysterious assemblages of birds may be justly classed amongst their most extraordinary instinctive habits.

In the northern parts of Scotland, and in the Ferroe islands, extraordinary meetings of Crows are occasionally known to occur. They collect in great numbers, as if they had been all summoned for the occasion; a few of the flock sit with drooping heads, and others seem as grave as judges, while others again, are exceedingly active and noisy; in the course of about an hour they disperse, and it is not uncommon, after they have flown away, to find one or two left dead on the spot. Another writer* says, that these meetings will sometimes continue for a day or two, before the object, whatever it may be, is completed; Crows continue to arrive from all quarters during the session. As soon as they have all arrived, a very general noise ensues, and shortly after, the whole fall upon one or two individuals, and put them to death: when this execution has been performed, they quietly disperse.

Another and nearly similar meeting was witnessed near Oggersheim, a small village on the banks of the Rhine; where, in a large meadow, every autumn, the Storks assemble, to hold (as the country people call it) a council, just before their annual migration. On one of these occasions, about fifty were observed, formed in a ring round one individual, whose appearance bespoke great alarm. One of the party then

* Dr. Edmonston's Shetland Isles.





Assemblage of Herons.

seemed to address the conclave, by clapping its wings for about five minutes. It was followed by a second, a third, and a fourth, in regular succession, each, like the first, clapping its wings in the same odd and significant manner. At last they all joined in chorus, and then with one accord fell upon the poor culprit in the middle, and despatched him in a few seconds. After which they rose up in a body, and one, according to their custom, taking the lead, flew off to the southward. This curious story is in some degree corroborated by the opinion of old writers, one of whom, in describing the migrations of these birds, in the eastern countries, says, that when they go away, the Stork that comes last to the place of rendezvous, is killed on the spot by the others*.

At Dunham, near Altrincham, in Cheshire, the seat of the earl of Stamford, there is a heronry, which has existed for many years. It happened, about the latter end of March, or beginning of April, a few years ago, that a gentleman, riding along the turnpike-road, saw in a small field, about a mile from the trees where the birds breed, about thirty-five or forty standing on the ground, and occasionally moving slowly in various directions. At first he was uncertain what birds they were, as their heads were thrown back, and they appeared little raised from the ground; but on approaching the spot, he was soon satisfied that they were Herons; his presence, however, had no other effect, (though in general they are remarkably shy and cautious,) than inducing those nearest the hedge, where he had stationed himself to watch their motions, to walk

* Bellonius.

leisurely to a more distant part of the field. He remained for some time a spectator of their singular assemblage, which impressed him with the opinion, that it was a deliberative council; and we agree with him, that in this case at least, though not in the preceding, which occurred in the autumn, their object was connected with the usual pairing, which takes place about that time. We are the more strengthened in the opinion, from having witnessed meetings in some degree similar amongst Magpies, and some other birds.

In the month of February, we recollect once seeing a prodigious number of Magpies in a field; some hopping about near the hedge, others secreted in the hedges, and no less than twenty-seven perched on a small ash-tree; at first, the presence of a fox was suspected, knowing it to be a constant practice with these birds to collect if Reynard shows himself; but as they did not appear to be hovering over any particular spot, as if a concealed enemy was lurking near, we inclined to the opinion, that some private concerns of their own had brought them together. The chattering was incessant, and when disturbed, and under the necessity of beating a retreat, they flew nearly in the same direction as if disposed to adjourn their meeting to a more retired spot, than with a view to break it up.

A singular habit, somewhat similar, little known or noticed, though not uncommon, prevails also among Starlings; if carefully watched, they may be seen occasionally to alight in a regular circular form. A numerous flock was once seen to divide itself into two companies, each forming a distinct circle.

If undisturbed, they will remain a considerable time in the same place, uttering the same twittering note upon the ground, as when perched on trees or reeds. This habit is usually observable in pastures,—sometimes, though rarely, in stubble-fields, but never upon fallow or new-ploughed land.

We have pointed out some of the broad marks of distinction between the Crow and the Rook, as far as relates to their food and habits; a slight reference to the personal difference between them will be sufficient. The beak of the Crow is more bent, and rather stronger, and is never without the bristly feathers that cover the base and the nostrils, as is the case with the Rook, whose beak, when of full-growth, is easily distinguished by the naked and scurfy white skin at its base, and on the chin,—produced, as some naturalists assert, by the bristles being rubbed off, owing to its constantly thrusting its bill deep into the soil, in search of worms and insects. We feel, however, much inclined to doubt this, and would rather attribute this nakedness of the base of the bill, to an original and natural peculiarity. It has been well argued in favour of the former opinion, that a specimen was killed whose beak was much longer than usual, and the extremities of which were not only much curved, but actually crossed like a Crossbill's, and that the base of the beak of this bird, from an impossibility of its being thrust into the ground, was clothed with a full plumage of bristles, and not bare like those of other Rooks. On the other hand, it has been urged, that if these bristles were worn down by being thrust into the ground, they would be renewed like other

feathers at the regular moulting-time; and, further, as all new feathers are full of blood at the roots, any application tending to grind them down, would be so painful to the Rook, that it would be very unwilling, if indeed able, to thrust its beak into the ground; and again, which we consider as a still stronger argument,—it may be asked, if the Rooks' bristles are destroyed by this process, how comes it that the Jackdaw, Jay, and Magpie, and some other birds retain them, though as constantly thrusting their beaks into the ground in search of worms, as the Rooks?

When viewed together, a further distinction will be seen between the Rook and the Common Crow, in the glossy colours of their plumage; that of the Rook being more inclined to a rich purple, whereas, that of the Crow is of a greenish blue. There is one other supposed distinctive mark, which we shall mention, merely because we believe it does not exist, namely, that the Rook has a pouch under its chin, in which it can carry a full supply of food for its young.

It is perfectly true, that Rooks appear to have such an appendage, which, in the Spring-time, is particularly conspicuous,—when they may be seen flying with a swelling under the throat of the size of a Pigeon's-egg; but closer observers have discovered that in the Crow, Jackdaw, &c., there is the same elasticity and pliability of the skin; and that they not only can, but do often take in a provision of food, which swells the upper part of the throat out to a considerable size; though, owing to the *gray colour* of the Rook's chin, this swelling is more *apparent*.

We now come to a more important question respecting Rooks; in the settlement of which, the world is much divided. Are they beneficial or injurious to man? Is the farmer a gainer or a loser, by being subjected to the daily visits of two or three hundred of these birds from a rookery?

In former days, there can be no question of public opinion being entirely against them, and that the destruction of Rooks was regular and systematic; an inference which may be fairly drawn from the following entry amongst certain presentments concerning the parish of Alderley, in Cheshire, in 1598, being the fortieth year of queen Elizabeth's reign: "We find that there is no Crow-nett in the parish, a payne that one be bought by the charge of the parish."

As in most cases, so in this, we are inclined to think that a great deal may be said on both sides; for, as the Rook cannot be altogether acquitted of the charge of doing some harm, so neither, is he to be found guilty of doing nothing but mischief. We will examine first, the unfavourable side. A Rook which we kept for some time, was, after a night's fast, fed entirely upon oats, of which it ate, in twenty-four hours, two ounces, of sixteen ounces to the pound; while another, under similar circumstances, consumed two ounces and a half of bread.

This certainly would bear strongly against them, was there nothing to be said in mitigation; but it should be remembered, that the above consumption is founded upon the supposition, that Rooks lived entirely upon grain, which, so far from being the case, is very much the reverse; for they prefer an

insect diet, if not altogether, at least to a great extent. And even with respect to grain, they will not willingly eat it, except in a particular state, preferring it when somewhat softened, and more particularly during the time of its undergoing the natural malting process, when it not only swells, but becomes soft, with an addition of about two-thirds of gum and sugar to the small quantity it before contained. During this critical time, the fresh-sown crop is undoubtedly in some peril, as well as a short time before harvest, when the soft and sweet ears of green grain offer irresistible temptation to a robbery of which it is to be feared they must be found guilty, and no money can be more profitably laid out, at such critical moments, than the daily wages of a few boys, for the sole purpose of frightening them away.

Fresh-planted potatoes are also for a time in jeopardy; but when they have fairly sprouted, the Rooks' depredations are suspended till the season for digging them up, when a trifling loss may be sustained by their carrying off a few of such smaller ones as they can conveniently grasp in their bill.

Such are the depredations which may be fairly laid to their account; but nevertheless we feel quite certain that on striking a fair balance, the advantage will be in favour of preserving the Rooks, and that if every nest were pulled to pieces, the farmers would soon do all in their power to induce the old birds to rebuild them; finding out, too late, that their crops might suffer the fate which befell an entire district in Germany, and which was once nearly deprived of its *corn-harvest*, by an order to kill the Rooks having

been generally obeyed ; the immediate consequence being an increase of grubs, and their depredations. For, allowing that the Rook may do an occasional injury to the husbandman, it confers benefits in a far greater proportion, and to an extent of which few are aware. Some of our readers, who live in the southern counties, know full well how the air, on a summer's evening, swarms with cockchaffers, and other insects of the beetle tribe ; but unless they are naturalists, they do not know, that each of those cockchaffers or beetles has been living under-ground for no less than from three to four years, in the form of a large whitish grub, devouring incessantly the tender roots of grasses, and every description of grain ; and that it is in search of them the Rooks flock round the plough-share, and thrusting their bills into the loosened earth, devour these ruinous root-eaters by thousands and tens of thousands. So injurious are they, indeed, in favourable seasons, that the sum of twenty-five pounds was once allowed to a poor farmer in Norfolk, as a compensation for his losses ; and the man and his servant declared that they had actually gathered eighty bushels of cockchaffers.

In France, again, many provinces were so ravaged by grubs, that a premium was offered by government for the best mode of ensuring their destruction ; and yet singularly enough, so little were the people acquainted with the real and best mode of stopping the mischief, that when their dreadful Revolution broke out, accompanied with murder and bloodshed which can never be forgotten, the country people, amongst other causes of dissatisfaction with their superiors, alleged their being fond of having rookeries

near their houses ; and in one instance, a mob of these misguided and ignorant people, proceeded to the residence of the principal gentleman in their neighbourhood, from whence they dragged him, and hung his body upon a gibbet, after which they attacked the rookery, and continued to shoot the rooks amidst loud acclamations.

It is scarcely necessary to name the wire-worm as one of the greatest scourges to which the farmers are exposed ; and yet, it is to the Rook chiefly, if not entirely, that they can look for a remedy. Cased in its hard shelly coat, it eats its way into the heart of the roots of corn, and is beyond the reach of weather, or the attacks of other insects, or small birds, whose short and softer bills cannot penetrate the recesses of its secure retreat buried some inches below the soil. The Rook alone can do so ; if watched, when seen feeding in a field of sprouting wheat, the heedless observer will abuse him, when he sees him jerking up root after root of the rising crop ; but the careful observer will, if he examines minutely, detect in many of these roots, the cell of a wire-worm, in its silent and underground progress, inflicting death on stems of many future grains. Their sagacity, too, in discovering that a field of wheat, or a meadow, is suffering from the superabundance of some devouring insect, is deserving of notice.—Whether they find it out by sight, smell, or some additional unknown sense, is a mystery ; but that they do so is a fact beyond all contradiction.

We remember a few years ago seeing, for several days, a flight of Rooks regularly resorting to a field *close to the house* ; and on walking over it, observed

that the whole surface was covered with uprooted stems of one particular plant, and on looking more narrowly, it was ascertained that many of those still untouched were of an unhealthy yellow appearance; and that to these alone the Rooks seemed to direct their attention; and on still closer examination, the roots of each of these unhealthy plants were found to have been attacked by a small grub, which at once accounted for the daily presence of these sable visitants.

We often hear persons congratulating themselves on a deep snow, a hard frost, or dry weather, as the surest means of destroying insects; whereas it is just the reverse. A hard frost, or a deep snow, or a dry summer, are the very best protection they can have, and for this reason, the Rooks and other birds cannot reach that innumerable host which pass the greatest part of their existence under-ground. In vain the hungry Rook, in a hard frost, looks over a fine fallow, or a field of new-sown wheat. He may be seen sitting on a bare bough, like Tantalus, in the midst of plenty beyond his reach, with his feathers ruffled up, casting every now and then an anxious glance over the frozen surface, beyond the power of even his strong beak to penetrate. His situation is much the same in dry Springs or Summers, when he may be seen walking up and down by the sides of highways, picking up what he can get. In the hot summer of 1825 many of the young broods of the season are reported to have been starved: the mornings were without dew, and consequently few or no earth-worms were to be obtained,

and they were found dead under the trees*, having expired on their roostings. It was quite distressing, says an eye-witness, to hear the constant clamour of the young for food. The old birds seemed to suffer without complaint; but the wants of their famishing offspring were expressed by unceasing cries. Yet, amidst all this distress, it was pleasing to observe the perseverance of the old ones in the endeavour to relieve their perishing families, for many of them remained out, searching for food, long after their accustomed roosting-time, and then, adds this interesting writer, "the Rook became a plunderer," and dreadful havoc took place in the potato-fields, where whole lines were afterwards seen broken up, in consequence of the visits of suffering Rooks.

We have before noticed the instinctive sagacity shown by Rooks, Jays, &c., in avoiding the approach of sportsmen, or other suspicious characters; and it would appear that they can with equal discrimination discover, and attach themselves to friends. A clergyman who had a small rookery near his house, assured us, that when he walked near, or under the trees, they exhibited no signs of alarm; but when a stranger approached, they were evidently uneasy, and manifested, by their loud cawings and movements, their wish for his departure. The following anecdote is a still more convincing proof of this instinctive faculty.

A farmer rented a farm in the county of Essex, some years ago, where he had not resided long, before a number of Rooks came and built their

* *Journal of a Naturalist.*

nests upon the trees immediately surrounding the premises; and multiplied so much in the course of three or four years, as to form a considerable rookery, which he much prized. About this time, however, he was induced to take a larger farm, which obliged him to change his residence and forsake his Rooks; but to his great surprise and pleasure, the whole rookery manifested such an attachment towards him, as led them to desert their former habitation, and accompany him to his new abode, which was about three-quarters of a mile off, and there they have continued to flourish ever since. It should be added, that this person was strongly attached to all animals whatsoever, and that he always experiences a striking return of affection, even from the least docile of them.

Could we dive into all the mysteries of a rookery, a page in the book of nature would be opened, filled with much that "man's philosophy hath never dreamed of." Without any assignable cause, a party will secede from an old-established rookery and form a new one. A case of this sort occurred about five years ago, in the parish of Alderley, in Cheshire. Seven pair of Rooks, supposed to have come from an old rookery about two miles distant, where an extent of wood admitted of unlimited accommodation, took up their residence in a clump of trees, and proceeded to build; there they have continued ever since, the number of nests increasing as follows. In 1828 there were seven nests; in 1829, nine; in 1830, thirteen; in 1831, twenty-four; in 1832, thirty-three; in 1833, upwards of fifty; and in this year there is a proportionate increase.

with colonies settling in adjacent trees. It has been said that Rooks usually prefer elm-trees for building, and it was observed, that in a mingled grove of horse-chestnuts and elms, at Hawley, in Kent, not a single nest was ever built in the horse-chestnut-trees, though the elms were full of them. In the above instance, however, they certainly gave the oak a preference, leaving an elm-tree close at hand untenanted. These birds, like the rest of their species, return at a particular time in Autumn; and for a few days, seem to be very busy about their nests, as if preparing them for immediate use, and then desert them for the winter; no reason has been discovered for this singular habit, peculiar it is believed to Rooks. May it not probably arise from an instinctive feeling, that as the nests will be wanted early in the Spring, a few repairs may be requisite to strengthen and prevent their being shattered or blown to pieces by the storms of winter; and that according to the homely proverb of "the stitch in time saving nine," they may thus be saving themselves a greater degree of labour than they could easily bestow, when the trees are again to be occupied? Most other birds are under no necessity of looking after these autumnal repairs, as they do not use the same old nests, but build entirely new ones.

Rooks, we have seen, will occasionally remove, and colonize other situations at a distance from their late frequented abodes; and as some persons may wish to establish a rookery in their own immediate neighbourhood, it has been said, that by looking out for a Magpie's nest near the wished-for spot, and

exchanging her eggs for those of a Rook, the desirable point may be accomplished; the young Rooks having no other associations than those of the tree in which they were bred, and being sure of a harsh reception, if not of being picked to death, if venturing to join any neighbouring rookery in which they have no family connexions.

The habits of a Jackdaw are known to everybody: wherever found, he is the same active, bustling, cheerful, noisy fellow. Whether in the depth of a shady wood, "remote from cities and from towns," or whether established in the nooks and niches of some Gothic cathedral-tower, in the very midst of the world, it matters not to him. He seems to know neither care nor sorrow,—ever satisfied—always happy! Who ever saw or heard of a moping, melancholy Jackdaw?

We have in England another bird much resembling him in manners and colour, though from certain distinguishing features, such as a bent orange-coloured beak and legs, &c., it has been placed in another division of birds. It is the red-legged Crow or Chough, never seen in most parts of our island, though in its favourite haunts, in front of high precipices and steep rocks by the sea, often very abundant. Like Jackdaws, the Choughs are easily tamed, and are as entertaining, and at the same time as troublesome when tamed. On a lawn, where five were kept, one particular part of it was found to turn brown, and exhibit all the appearance of a field suffering under severe drought, covered as it was with dead and withering tufts of grass, which it was soon ascertained the Choughs were incessantly employed in

tearing up by the roots, for the purpose of getting at the grubs, already alluded to in our description of Rooks. The way they set about it was this:—they would walk quietly over the surface, every now and then turning their heads with the ear towards the ground, listening attentively in a most significant manner. Sometimes they appeared to listen in vain, and then walked on, till at length, instead of moving from the spot, they fell to picking a hole as fast as their heads could nod, just like the Thrushes before mentioned; and, in the end, almost always succeeded in extracting a few large grubs, with which, as soon as the fortunate finder had secured one, he hopped off to enjoy his delicate morsel, followed and jostled by the rest, who had been less successful in their search; adding another proof of the utility of birds in ridding us from injurious insects;—and all in favour of the Rook family. In every part of the world, the character of the Jackdaw tribe seems to be the same.

Thus in the island of Ceylon, in India, these birds are extremely impudent and troublesome; and it is found very difficult to exclude them from the houses, which on account of the heat are built open, and much exposed to intruders. In the town of Colombo, where they are in the habit of picking up bones and other things from the streets and yards, and carrying them to the tops of the houses, a battle usually takes place for the plunder, to the great annoyance of the people below, on whose heads they shower down the loosened tiles, leaving the roofs exposed to the weather. They frequently snatch bread and meat from the dining-table, even when it is surrounded

with guests, always seeming to prefer the company of man, as they are continually seen hopping about near houses, and rarely to be met with in woods or retired places. They are, however, important benefactors to the Indians, making ample compensation for their intrusion and knavery; for they are all voracious devourers of carrion, and instantly consume all sorts of dirt, offal, or dead vermin; they, in fact, carry off those substances, which, if allowed to remain, would in that hot climate, produce the most noxious smells, and probably give rise to putrid disorders. On this account they are much esteemed by the natives; their mischievous tricks and impudence are put up with, and they are never suffered to be shot or otherwise molested.

In North America there is a small species, called the Cinereous Crow, which also much resembles the Jackdaw, and is near akin to him. It is described* as very familiar, and fond of frequenting habitations, both houses or tents; and so much given to pilfering, that no provisions it can come at, either fresh or salt, are safe from its depredations. It is so bold as to come into tents, and sit on the edge of the kettle when hanging over the fire, and steal victuals out of the dishes. It is very troublesome to the hunters, both English and Indian, frequently following them a whole day; it will perch on a tree, while the hunter is baiting his Marten-traps, and, as soon as his back is turned, alight on the ground, and eat the baits.

Thus, all over the world, the Jackdaw tribe are notoriously given to pilfering. Whatever it sees it

* HEARNE'S Travels.

considers a prize, and carries off to its hoard. In the ruins of Holyrood Chapel, in Edinburgh, a Jackdaw was one day seen flying away with a large piece of lace, towards its nest; a soldier undertook to climb up and recover it. He did so, but was surprised to find not only the stolen lace, but the following strange assortment of articles;—part of a worsted-socking, a silk-handkerchief, a frill, a child's cap, besides several other things, but so ragged and worn out, that it was impossible to make out what they were.

JAYS AND MAGPIES.

It is remarkable how exactly similar are the habits and propensities of birds of the same tribe or family, though of a different species. Thus the Jays of North America are of various sorts, entirely differing from our English Jays in parts, or the whole of their plumage; and yet in their manners scarcely a difference is observable. We have before remarked, that these and some other birds will just keep out of the range of gun-shot, as if they had learned, either from experience, or by some unknown mode of communication from their older companions, that provided they never allowed a shooter to come within a given distance, they were quite safe. But the American Jays we are speaking of have no such knowledge, founded upon experience, as is fully proved by the account of an English officer*, who was travelling in a very wild unfrequented part of

* Captain Sir Francis Head.

North America, where no gunners had ever gone before him, and no Jay could therefore have ever learned the proper distance to keep in order to ensure its safety. Yet there they were, exactly like our common English Jays, shy and cautious, as if they had been hunted by sportsmen every day of their lives, keeping at a certain distance, with that occasional clatter and chattering so well known to those who have patiently and perseveringly pursued from copse to copse, or tree to tree, a disturbed party of these cunning birds.

At the same time, certain birds of similar habits will naturally, under peculiar circumstances, act very differently; we have an instance of this, in the singular departure of the Magpie from its usual custom of building its nest. Everybody knows that where trees abound, that which is loftiest, or most difficult of access, is chosen; but in parts where there are no trees, instead of retiring to high rocks, and choosing places not easily approached, they will take possession of bushes close to the very doors of houses, particularly in those countries where, instead of being persecuted, they are preserved, from an opinion that it is unlucky to kill them. Accordingly, in Sweden and Norway, travellers are struck by their surprising numbers and tameness, their nests being built in some low bushy tree close to the cottage-doors, where they are never disturbed.

The following instance, which fell under the observation of a gentleman when making an excursion in a remote and barren part of the north of Scotland, not only corroborates the statement from Norway and Sweden, but is attended with many

other interesting particulars of the sagacity shown by a pair of Magpies. Observing them hopping round a gooseberry-bush, and flying in and out of it in an extraordinary manner, he noticed the circumstance to the owners of the house in which he was, who informed him that as there were no trees in the neighbourhood they had for several years built their nest, and brought up their young in that bush. And that foxes, cats, hawks, &c. might not interrupt them, they had barricadoed not only the nest, but the bush itself all round, with briers and thorns, in a formidable manner. The materials in the inside of the nest were soft, warm, and comfortable to the touch, but all round, on the outside, so rough, strong, and firmly entwined with the bush, that, without a hedge-knife, or something of the kind, even a man could not, without much pain and trouble, get at their young; the barrier from the outer to the inner edge, being above a foot in breadth. Frogs, mice, worms, or anything living were plentifully brought to their young. One day, one of the parent-birds attacked a rat, but not being able to kill it, one of the young ones came out of the nest and assisted in its destruction, which was not finally accomplished till the other old one, arriving with a dead mouse, also lent its aid. The female was observed to be the most active and thievish, and withal very ungrateful; for although the children about the house had often frightened cats and hawks from the spot, yet she one day seized a chicken, and carried it to the top of the house to eat it, where the hen immediately followed, and having rescued the chicken, brought it safely down in her beak; and it was

remarked that the poor little bird, though it made a great noise while the Magpie was carrying it up, was quite quiet, and seemed to feel no pain, while its mother was carrying it down. These Magpies were supposed to have been the very same pair which had built there for several years, never suffering either the young, when grown up, or anything else, to take possession of their bush. The nest they carefully fortified afresh every Spring, with rough, strong, prickly sticks, which they sometimes drew in with their united forces, if unable to effect the object alone. To this tameness and familiarity, the Magpie will sometimes add a considerable degree of courage, and not satisfied with driving away intruders from its premises, has been known to attack animals much its superiors in size. One of them was seen pursuing a full-grown hare, making frequent and furious pounces upon it, from which the animal at last escaped only by making for a thick hedge, at the other side of which it ran off to some distance from the place where it had entered, without being observed by its pursuer. No cause could be assigned for this assault.

A favourable trait in their character occurred in Essex, where some boys, having taken four young ones from a Raven's nest, placed them in a wagon in a cart-shed. About the same time they happened to destroy the young of a Magpie, which had built its nest near the cart-shed; when the old Magpie, hearing the young Ravens crying for food, brought some, and constantly fed them till they were given away by the boys.

Generally speaking, these birds prefer our northern climates, though they are very plentifully spread over the world. In some spots they are, however very scarce, without any apparent reason. Thus a traveller, who had been through Turkey, remarked that he never saw a single bird of this species, and had seen very few indeed in the adjoining countries.



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THIS Tract was written with the single object, and with the earnest wish, of doing some good. The sin of lying is, unhappily, regarded by many persons as scarcely deserving *censure*, by others, as not constituting *guilt*. These pages may open their eyes to "the exceeding sinfulness" of this particular offence, and show them in what light it is regarded by the God of truth. M.

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THERE is no period of our lives which appears more important than that when we are beginning to act for ourselves. In childhood, we are chiefly guided by our parents; in after-life we have experience to assist us, and if religious habits have been formed, they will tend to keep us in the right way; but when we are about to enter on life, we must begin to form habits either good or bad, by obeying or disobeying God's commandments.

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THESE Sermons are extracted from a volume of *Discourses on the Services of the Church*, by the same author, and are now printed in the form of a small book, and at a low price, for the purpose of general circulation.

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Of the suggestions here offered, some of them are general, involving principles which are applicable to all teachers, in whatsoever Sunday-school they may be engaged; whilst others relate to the mechanical practices and arrangements,

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